

THE HORSE IN GREEK ART

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# THE HORSE IN GREEK ART

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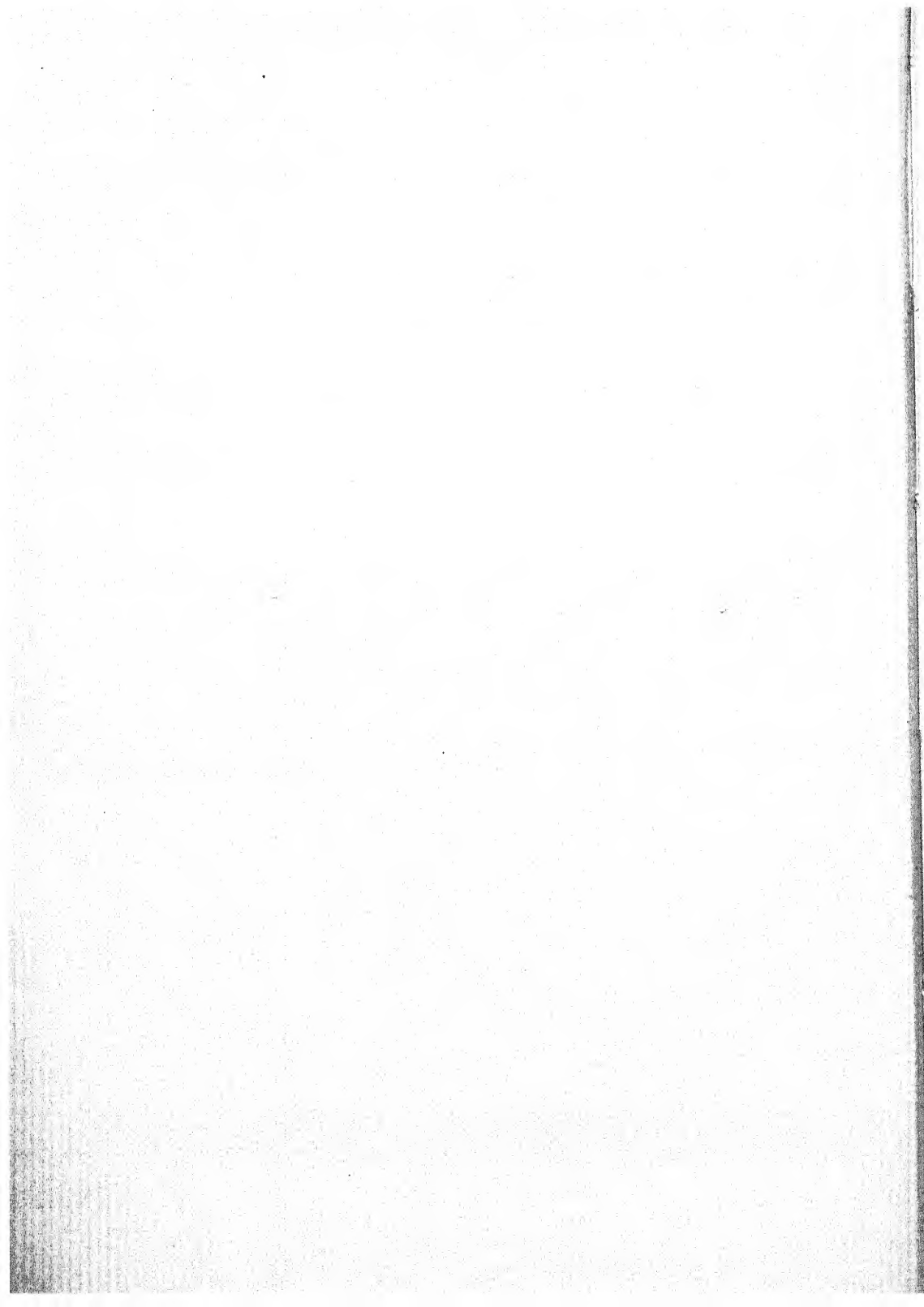
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TO MY MOTHER AND FATHER



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PREFACE

The purpose of this study has been to establish a system of dating for representations of the horse in Greek art, particularly sculpture. As originally planned, indeed, the writer's intention was to confine the scope to the chronology of the horse as it appears in Greek sculpture. But when it was evident that minor media, as in the earlier periods, would have to be considered, the title necessarily became "The Horse in Greek Art."

The first step was to select as datum points examples of the horse which could be dated as far as possible on wholly external evidence. In the case of the earlier periods from which no monumental sculpture survives, I have had necessarily to resort to minor media, not always fulfilling this condition of absolute date, in order to establish the first stages in the development. At the point where monumental sculpture becomes available, however—first of all in the treasury of the Siphnians at Delphi—I have abandoned minor media for establishing datum points. Once past the earlier phases of the development, moreover, the selected sculptures could be arranged in chronological order, and analyses could be made of the anatomy, proportion, and movement of each. These analyses, which appear in Appendix II, form the basis of the chronology of the development of representations of the horse in Greek art. With the datum points thus clearly marked off, hitherto undated or incorrectly dated monuments may be placed within the established chronology. Thus, the main results and conclusions of this work are assembled in the chronological chapter at the end. This chronological survey, though by no means complete, shows how the system of dating established in the main part of the study may be applied.

Before this study could be undertaken, however, I had first to acquaint myself with the anatomy, proportions, and move-

ment of the living animal. Because the anatomy of the exterior of the horse, or even the names of the various parts of the animal, are not known to the average reader in this day of the automobile, it was thought desirable to present a brief anatomical survey (Figs. 1, 2, 3, 4), including also a short discussion of proportion and gait (See Appendix I).

Except for the work of such men as Ridgeway and Keller and a few others, historians have had little to say of the horse in the Greek world. A short historical survey was included to give the reader an idea of how the Greeks regarded this animal. It constituted an important branch of their armed forces, and was their chief means of rapid transportation. Also included in this chapter is a consideration of the sort of horses the Greeks used, although no serious attempt is made to determine the race or breed. Ridgeway and Keller, attempting to do this, fall into frequent errors largely because of insufficient evidence from such secondary sources as the contemporary literature and monuments. I do, however, distinguish three main types of horses: the "European"; the "Western"; the "Asiatic." I merely catalogue these three types, since the scant evidence in literature and art does not lead to more specific conclusions. One cannot be categorical even about these three types without a preliminary study of contemporary skeletal remains, and such an undertaking would be far outside the scope of the present study. Among other questions considered, but excluded as being inconsistent with the purposes of a survey of the horse in Greek art, were those dealing with religion and mythology.<sup>1</sup>

The study of the geometric period has been one of great fascination. It was not until this period, after the nomadic Dorians had arrived—perhaps riding on horse-drawn wagons and on horseback—that the art of the Greek peninsula for the first time exhibited horses in noteworthy numbers. The Geometric strata are generally rich in terra cotta and bronze

<sup>1</sup> Such studies, for example, as Maltén, *JdI* XXIX, 1914, pp. 179-225, "Das Pferd im Totenglauben."

figurines of horses. The finds at three famous ancient sites—Olympia, Delphi, and Argos—where a great deal of geometric material has been brought to light, were closely analysed. Miscellaneous horses from other sites, or of unknown provenance, as well as some horses painted on vases, were also considered. First the mass of material was arranged according to distinct types. The individual objects in each of these divisions were arranged according to a relative scale of anatomical development. The divisions themselves were similarly arranged. A *terminus ante quem*, more or less certain, was established at about 700 B. C. The problem of deriving a *terminus post quem* was not solved to my entire satisfaction. Many difficulties were encountered, due to the lack of more complete evidence than that presently available. At any rate, the date 925 B. C., as offered by the excavators of the site at Tell Abu Hawam in Palestine, based on some Thessalian proto-geometric sherds found there, was chosen as the *post quem* date. Until more complete evidence appears, this date may be temporarily accepted. Thus, within the probable limits 925-700 B. C.<sup>1</sup> for the geometric development, an absolute chronology for horses has been suggested.

Chapter III, The Orientalising and Early Archaic Periods, 700-550 B. C., deals entirely with vases. Then in Chapter IV, The Ripe Archaic Period, 560-480 B. C., having treated the François Vase (Fig. 24), and an amphora by Exekias, I have abandoned vases as a basis for establishing chronology. From then on, examples of sculpture are utilized exclusively, except in two instances when definitely dated coins are employed. But before leaving vases, a brief study is made of some important examples extending well into the fifth century. It is evident, however, that the rendering of the anatomy in vase painting, having reached a stage of naturalism, is reduced to so many hard and fast devices which persist even as late as the Hellenistic period. Since the sole basis for establishing the chronology is how the artist renders

<sup>1</sup> In some local sections the Geometric period continued till 650 B. C. or later.

anatomy, this criterion is negated when it is found that he often consciously uses rigid-set formulae. Another important difference between early and late vases appears in the use of perspective. A study of this, however, was felt to lie outside the scope of the present investigation.

It should be remembered, nevertheless, that up to a certain point it has proved fruitful to make analyses of the anatomy, proportion, and movement of horses painted on vases. There is, indeed, an increasing naturalism from one generation to the next, as more and more anatomical details were added to the total repertoire, and as these details were rendered more and more correctly. Even after the development reaches its culmination in the red-figured style, it is possible to distinguish an earlier horse from a later example. The basis of recognition, however, is derived not from anatomy, proportion, or movement, but rather from the nature of the perspective, composition, style, and subject matter.

In attempting to establish an absolute chronology between vase-painting and sculpture,<sup>2</sup> one must not depend exclusively on a line drawing technique to supply evidence for dating three dimensional sculptures, or vice versa. Consider how any one detail is rendered in the two media, the nostril, for example. The vase-painter, even in the fifth and fourth centuries, draws a circle, or part of a circle, to indicate the nostril, depending on whether it be more or less distended. He can do little else than render it in correct proportion, in the right location, and in correct perspective. His contemporary, working in sculpture in the round or even in relief, adds many details impossible to include in painting. He shows the cartilaginous rim, the softer flesh away from the rim, even the differences in texture between the outside and inside of the nostril, as well as the various muscles attached

<sup>2</sup> Cf., Langlotz, *Zur Zeitbestimmung des strengrotfigurigen Vasenmalerei und der gleichzeitigen Plastik*, Leipzig 1920; and Bulas, *Chronologja Attyckich Stel Nagrobnych Epoki Archaicznej*, Cracow 1935, who attempts a dating of stelai based in large part on contemporary vase painting.



to it. He includes many other details which can only be rendered by means of surface textures, of planes and surfaces, and not by means of line drawing. (See Selene's Horse, Ch. V, Ex. XII, Fig. 46, p. 78, below.) In contrast to the sculptor, the painter renders the anatomy, very often quite naturalistically, by means of "cues" rather than by actually reproducing the forms of nature itself. And these cues, the formulae or devices for rendering reality, were already well established in the sixth century in the red-figured vase style.

The remaining chapters then take up the analyses of major sculptured works from definitely dated monuments, such as the Temple of Zeus at Olympia, the Temple of Apollo at Bassae, the Parthenon, the Nereid Monument, the Dexileos Stele, the Temple of Asklepios at Epidauros, the Mausoleum, and many others. With the Hellenistic period it becomes apparent that definitely dated monuments including horses as part of the sculptured decoration are scarce. By the first century B. C. none at all are available, and the investigation properly ends at this point. (The analyses of anatomy, proportion, and gait of the examples from each chapter are all in Appendix II.)

The last chapter, Chapter VIII, A Brief Chronological Survey of the Horse in Greek Art, is something of a sample of how the method for dating examples of horses in Greek art works. Undated monuments are here placed between two *termini* formed by two examples of certain date analysed in the text. The basis of comparison is the anatomy, proportion, and gait. (See Appendix II for analyses.)

The use of the terms *naturalism* and *realism* must be clearly defined. By realism is meant a fidelity to nature, that is, real to life. By naturalism is meant a conformity to nature. The habit of art historians to speak of the classical period in the latter half of the fifth century as one of "idealised realism," is sometimes confusing. Idealised realism in this case is actually idealised naturalism. The confusion probably arises from the use of the word realism in the philosophical sense as

defined by Plato. The real is the "*ἡ τοῦ ἀγαθοῦ ἰδέα*," *the idea of the good*, that is, the universal as opposed to the particular. In this sense the Parthenon sculptures are "idealised realism," for they are not representations of particular individuals, rather of a universal type. Except for this meaning in the chapter on the classical period, the terms realism and naturalism are used in a non-Platonic sense, that is, in the common empirical everyday use: *realism*, fidelity to nature; *naturalism*, conformity to nature.

I wish to acknowledge the help and advice I have received from many during the course of this investigation. Professors Margarete Bieber and William B. Dinsmoor, of Columbia University, aided me constantly throughout the time that I was engaged in this research. They read the manuscript chapter by chapter, and by their pertinent criticisms and advice I was the better able to complete the study.

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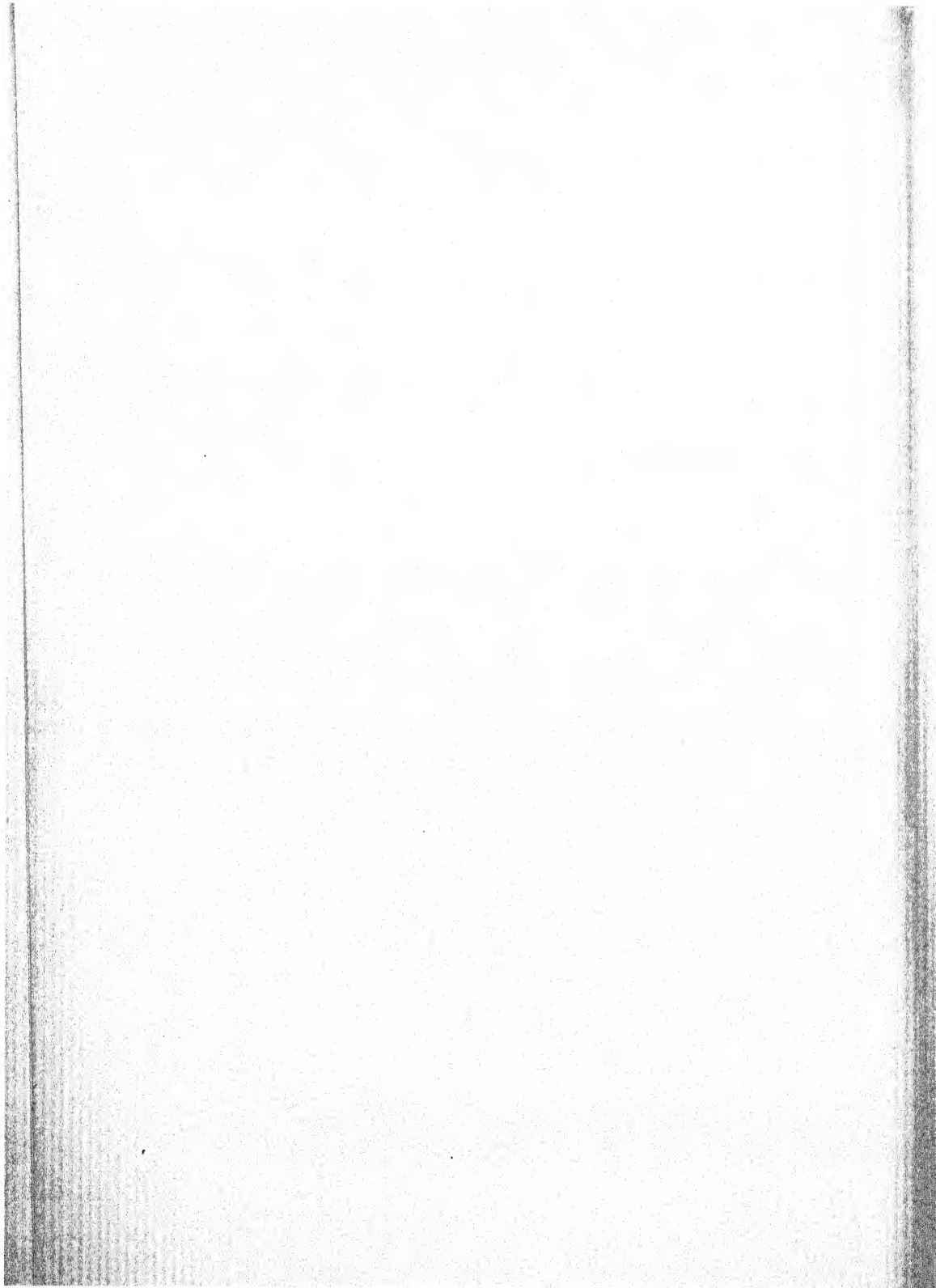
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## ABBREVIATIONS

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<i>AA</i>	Archäologischer Anzeiger
<i>AJA</i>	American Journal of Archaeology
<i>AM</i>	Athenische Mitteilungen
<i>Ann</i>	Annuario della R. Scuola Archeologica di Atene
<i>Annali</i>	Annali dell' Istituto
<i>AntDenk</i>	Antike Denkmäler
<i>AZ</i>	Archäologische Zeitung
<i>BCH</i>	Bulletin de Correspondance Hellénique
<i>BdI</i>	Bulletino dell' Istituto
<i>BMFA</i>	Bulletin of the Museum of Fine Arts, Boston
<i>BMMA</i>	Bulletin of the Metropolitan Museum of Art, New York
<i>BMQ</i>	British Museum Quarterly
<i>BrBr</i>	Brunn-Bruckmann, Denkmäler
<i>BSA</i>	Annual of the British School at Athens
<i>CIL</i>	Corpus Inscriptionum Latinarum
<i>CVA</i>	Corpus Vasorum Antiquorum
<i>CW</i>	Classical Weekly
<i>Δελτ.</i>	'Αρχαιολογικὸν Δελτίον
<i>Ἐφ.</i>	'Αρχαιολογικὴ Ἐφημερίς
<i>FR</i>	Furtwängler-Reichhold, Griechische Vasenmalerei
<i>GBA</i>	Gazette des Beaux Arts
<i>Hesp</i>	Hesperia
<i>IG</i>	Inscriptiones Graecae
<i>JdI</i>	Jahrbuch des Deutschen Archäologischen Instituts
<i>JOAI</i>	Jahreshefte des Oesterreichischen Archäologischen Instituts
<i>LAAS</i>	Liverpool Annals of Archaeology and Anthropology
<i>MontAnt</i>	Monumenti Antichi
<i>MontInst</i>	Monumenti dell' Istituto
<i>NS</i>	Notizie degli Scavi di Antichità
<i>PW</i>	Philologische Wochenschrift
<i>QDAP</i>	Quarterly of the Department of Antiquities in Palestine
<i>RA</i>	Revue Archéologique
<i>RE</i>	Pauly-Wissowa-Kroll, Real-Encyclopädie der classischen Altertums-Wissenschaft
<i>REG</i>	Revue des Études Grecques
<i>RM</i>	Römische Mitteilungen
<i>SIG</i>	Dittenberger, Sylloge Inscriptionum Graecarum
<i>WV</i>	Wiener Vorlegeblätter





# THE HORSE IN GREEK ART

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## CHAPTER I

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### THE HORSE IN THE GREEK WORLD

Next to the human figure, the horse appears as a favorite subject in all media of Greek art. The large number of Greek proper names containing the word *hippos*—Lysippos, Philippos, Xanthippos, Hipparchos, Hippolytos, the Hippobotae of Boeotia, and others—indicates the widespread popularity of the horse. During historical times the Greeks were of necessity a sea-faring rather than a horse-riding people. But, as was the case with the nomadic tribes of central and eastern Europe throughout Greek history and later too, it is more than likely that, prior to their arrival in the Greek peninsula, the horse was the most important means of transportation available to the Hellenes. By Solon's time, the beginning of the sixth century, those who could supply a horse for the cavalry comprised one of the four classes into which the Athenian population was divided, the Knights, *ἵππεις*. They were evidently but a small proportion of the total number of citizens. By Xenophon's time, that is, the end of the fifth century, after the Peloponnesian War, the first half of the fourth century, it is a definitely known fact that ownership of a horse, and service in the cavalry, was reserved exclusively for those who could afford such expensive equipment. In his treatise on horsemanship, Xenophon<sup>1</sup> says, "We do not think it necessary to give directions for breaking a colt. For in our states the cavalry are recruited from those who have ample means and take considerable part in the government." The very excellent tombstones of knights, thus classified because of

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<sup>1</sup> *On Horsemanship* II 1; cp. *Cavalry Commander* I, 11-12.

the use of a horse as part of the subject, bear witness to the opulence of the men who could afford to pay for such fine monuments, obviously carved by the best craftsmen.<sup>2</sup>

Civic pride in their cavalry and race horses is evidenced throughout Greek history on the coins issued by many Greek cities, especially those of Sicily and Magna Graecia.<sup>3</sup> Many sculptors achieved fame for their animal sculptures, and even a few like Kalamis, c. 475-450 B. C., and Strongylion, second half of the fifth century, were famous for their horses alone. Of Kalamis Pliny says that he was a great sculptor of horses, and that Praxiteles put a figure of a charioteer on a four-horse chariot of Kalamis, so that people would not think that a man who could make such wonderful horses was deficient in rendering the human figure.<sup>4</sup> Pausanias (IX 30), comments on Strongylion, saying that he made horses and oxen of great excellence. Among others, Euthykrates, the best known pupil of Lysippos, was famous for his equestrian as well as his athletic works.<sup>5</sup> Lysippos himself did many equestrian statues.<sup>6</sup> Statues were often dedicated to victorious horses.<sup>7</sup> According to Pliny the custom of setting up equestrian statues of victors originated in Greece.<sup>8</sup> He also makes mention of some famous painters who did horses of remarkable quality. Apelles, for example, painted a horse

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<sup>2</sup> See Chapter VI below for the Dexileos Stele, *Ex. II*; also Chapter VIII for many others ranging from the sixth to fifth and fourth centuries.

<sup>3</sup> For some especially fine examples from Sicily see Rizzo, *L'Arte della Moneta nella Sicilia Greca*; Gallatin, *Dekadrachms of the Euainetos Type*; for some examples from all over the Greek world see Imhoof-Blumer and Keller, *Tier- und Pflanzenbilder auf antiken Münzen und Gemmen*, pls. II, XVI, XXV, XXVI; Gardner, *The Types of Greek Coins*, pls. XI 4, IV 26, V 8, VII 40, VII 39; Hill, *L'Art dans les Monnaies Grecques*, pls. XLVIII, XLIX, which contains a good general survey, and some very excellent photographs.

<sup>4</sup> *Nat. Hist.* XXXIV 71.

<sup>5</sup> Pliny, *Nat. Hist.* XXXIV 66.

<sup>6</sup> *Ibid.* XXXIV 64, 65.

<sup>7</sup> Herod. VI 103; Paus. VI 10. 13.

<sup>8</sup> *Nat. Hist.* XXXIV 19.

so realistically that a live horse neighed at it.<sup>9</sup> Athenion, a pupil of Glaukon, did a very fine painting of a cavalry captain in the temple at Eleusis.<sup>10</sup> The literature, especially Pliny and Pausanias, is full of references to equestrian statues all over the Greek world, done by artists great and small during all periods of Greek history, all of which supplies us with an indication of how frequently the horse appeared in Greek art.

One of the first questions which comes to mind concerns the nature of the race or type of horse the Greeks used. Many scholars have investigated this problem, relying mainly on the literature and monuments for the solution. All have labored under the same difficulty, that is, trying to get a complete picture from incomplete evidence. For, besides the literature and monuments, a study of contemporary skeletons would also be necessary. From the literature, more or less satisfactorily corroborated by the monuments, it is possible to get only an idea of the sort of horses the Greeks used, and of the extent of their knowledge of equine matters. Unfortunately, it is generally impossible to determine the race of a horse by measuring a statue, just as it is impossible to determine the race of a human being by similar methods. Actual skeletal remains must be measured.<sup>11</sup>

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<sup>9</sup> *Ibid.* XXXV 95.

<sup>10</sup> *Ibid.* XXXV 134.

<sup>11</sup> For material on this subject see Ridgeway, *The Origin and Influence of the Thoroughbred Horse*, Cambridge 1905, who gives a good historical account, but his conclusions as to the breed of the various types of Greek horses must be carefully considered before acceptance, since they are based almost wholly on the evidence from contemporary literature. See also Tozer, *The Horse in History*, London 1908, pp. 1-66, for a good general statement. But he does not always quote his sources. A somewhat better study is that of Keller, *Die antike Tierwelt*, Leipzig 1909, pp. 208-259, who, like Ridgeway, draws too many unwarranted conclusions from the contemporary literature. He too often does not quote the sources on which he bases a great many of his more important conclusions. Two articles in *RE* XIX, "Pferd," pp. 1430-1444, and "Pferdezucht," pp. 1444-1445, summarize the more important literary

Roaming over the plains of central and eastern Europe during Greek historical times were horses of a type sufficiently distinct for Herodotus to notice and record. He tells of the Sigynnae from north of the Danube who had flat-nosed, long-haired, small shaggy horses quite incapable of carrying a man. But when these little animals were yoked to a chariot, they were very swift indeed.<sup>12</sup> According to Ridgeway, this description fits certain skeletons found near Mâcon, and, while Herodotus does not say what their color was, he assumes that they were dun-colored, that is, *xanthos*.<sup>13</sup> By "dun" he means a dull light yellowish or greyish brown. Color is a moot point in determining the race of a horse. Ridgeway's assumption that the horses of the Sigynnae were dun-colored, however, is bolstered by the fact that horses of this color were very common throughout Greek history, especially in Homeric times.<sup>14</sup> The name Xanthippos was a favor-

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references to the horse, particularly Aristotle, but have very little to say about breed or race. See Hörschmeyer, *Die Pferdezucht im klassischen Altertum*, Giessen, 1929; Michel, *Economics of Ancient Greece*, pp. 63-66 and our Bibliography for other works on this subject as well as those dealing with the movement of the horse, the horse in art, etc. For skeleton of a Greek horse cf. Robinson, *Olynthus*, XI, p. 90.

<sup>12</sup> Herod. V 9.

<sup>13</sup> *Origin and Influence of the Thoroughbred Horse*, p. 94. For Xanthos as a name of a horse, cf. Robinson, *AJA* XII, 1908, p. 235; Jeschonnek, *De nominibus quae Graeci pecudibus domesticis indiderunt*, pp. 38, 39.

<sup>14</sup> The definition given in Liddell and Scott, *A Greek English Lexikon*, New edition, Oxford 1940, for *ξανθός-ή-όν* is as follows: "yellow of various shades, often with a tinge of red, chestnut, auburn (cf. *πυρρός*). . . . In Homer it seems always to be used of fair, golden hair . . . ; thus Achilles always has *ξανθή κόμη*, *Il.* I 197, XXIII 141; Ulysses also has *ξανθαί τρίχες*, *Od.* XIII 399, 431; a distinctive epithet of some heroes *ξανθός Μενέλαος*; *ξ. Μελέαγρος*; *ξ. Παδαμάνθους* where it probably means yellow-haired, fair-haired rather than sunburnt; for it is applied to women, as to Agamemne in *Il.* XI 740 and to Ariadne in *Hes. Th.* 947; even *ξανθή Δημήτηρ* probably refers to her hair, which was the color of golden corn; . . ." The definition continues: ". . . the Homeric phrase *ξανθός ἔπκουε*,

ite Greek name, especially with the Alcmaeonidae, the family of Pericles, whose father had that very name. In Homer the Achaeans are described as having dun-colored horses with light manes.<sup>15</sup> Nestor, the old man so fond of talking about the good old days, related how he and his men once raided the Eleans, coming away with one hundred and fifty dun horses, all mares, many with their foals at their sides.<sup>16</sup> Plutarch in his biography of Pelopidas tells a story how instead of a maiden, a dun horse with a yellow mane was sacrificed.<sup>17</sup> Achilles' horses, said to have been given to his father Peleus by Poseidon himself, were named Xanthos (dun) and Balios (dapple).<sup>18</sup> Balios was the term applied to the color of deer and lynxes,<sup>19</sup> and must therefore have meant spotted or dappled. Achilles' horse Balios must have been a dappled dun horse, that is, a piebald. At any rate, the team is described as having long manes which hang low as they stand weeping for the dead Patroklos.<sup>20</sup> At the funeral games of Patroklos, Homer describes their long manes as trailing on the ground.<sup>21</sup> Nestor's horses driven by Antilochos at the games are described as being fair-maned.<sup>22</sup> With so many references to long-maned, light greyish brown, dun horses, it is quite possible that the horses of the Sigynnae were also of that color. If that is the case, then they could very well have been the descendants of the original horses the Hellenes rode into the Greek peninsula. However, the original stock was crossed with other breeds to produce the horses known to Herodotus

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bay or chestnut mares, *Il.* XI 680, IX 407." The latter statement is not substantiated, even in the light of the usages given in the first part of the definition. Chestnut as a color applied to horses, according to Aristotle is *παράσας*, *H. A.* 630<sup>a</sup> 29. See pp. 11-13, below, for a discussion of cross-breeding where the question of color enters, for further material on this color.

<sup>15</sup> *Il.* IX 407.

<sup>16</sup> *Ibid.* XI 680 ff.

<sup>17</sup> *Pelopidas* 20. 7.

<sup>18</sup> *Il.* XVI 149 ff.

<sup>19</sup> Euripides, *Hec.* 90; *Alc.* 579.

<sup>20</sup> *Il.* XVII 437 ff.

<sup>21</sup> *Ibid.* XXIII 233 ff.

<sup>22</sup> *Ibid.* XXIII 303.

in fifth century Greece, while those of the Sigynnae which he describes remained relatively unmixed.

There were not only dun horses in central and eastern Europe. White horses apparently were known, but were less numerous than the others. According to Herodotus, wild white horses grazed around a great lake from which the river Hypanis, the modern Bug, issued.<sup>23</sup> The statement that they were wild horses admits of the possibility that they were of an unmixed race, and at the same time not a common sight in Greece. As a matter of fact, to judge from the contemporary literature, white horses were rare and precious indeed. In Homer's time white horses were considered an oddity. Dolon, the Thracian spy captured by Odysseus and Diomedes, tells them of Rhesus, king of the Thracians, whose horses were whiter than snow and swift as the wind.<sup>24</sup> When Odysseus and Diomedes get these horses, Nestor waxes lyrically long-winded, saying that never before had he seen such horses.<sup>25</sup> By the fifth century and later, white horses, although somewhat commoner than in Homer's time, were still prized very highly. Herodotus saw fit to mention the white horses of the Ukraine. Strabo tells of a breed of white horses kept by the Veneti, living at the head of the Adriatic.<sup>26</sup> He says that Dionysios of Syracuse got some of these Venetian horses for his stud. Thus the strain soon spread all over Greece. These white horses of the Veneti were probably of the same central and east European stock as the horses of the Sigynnae, to judge from their description as small and flat nosed.<sup>27</sup> By Strabo's time the breed had apparently died out, and the Veneti abandoned the practice of horse-breeding.

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<sup>23</sup> Herod. V 52.

<sup>24</sup> *Il.* X 433 ff. The two horses appear on vases, including an unpublished hydria in the collection of D. M. Robinson. Cf. Baumeister, *Denkmäler des kl. Altertums*, pp. 726-728, Fig. 782. On Corinthian and Attic black-figure vases horses often are painted white especially if they are inside a group of four.

<sup>25</sup> *Ibid.* X 543 ff.

<sup>26</sup> Strabo 215.

<sup>27</sup> Aelian, *N. A.* XVI 24.

Yet the custom of sacrificing only white horses at a shrine to Diomedes there continued.<sup>28</sup> At any rate, white horses were held in great esteem. Hieronymos, aping the great Dionysios of Syracuse, would drive about in a chariot drawn by four white horses in order to impress the populace.<sup>29</sup> On his return home after his victory with the chariot at Olympia in 412 B. C., Exainetos of Agrigentum was brought into town with an escort of three hundred bigae drawn by white horses.<sup>30</sup>

In Asia Minor white horses were not unknown. As a matter of fact, they were somewhat more common there than in Europe. The Cilicians, for example, were able to pay as annual tribute to the Persians three hundred and sixty white horses, one for every day in the year.<sup>31</sup> Xerxes sacrificed white horses to the river Strymon.<sup>32</sup> The color of the famous Nisean horses is not known for certain. They came from Media or Armenia, and formed the best part of the Persian cavalry.<sup>33</sup> Nisean horses were very famous for their speed. Aristotle, in speaking of some camels of Upper Asia, says that they were even faster than Nisean horses.<sup>34</sup> Like Strabo, Herodotus also maintains that they probably originated on the plains of Media. In the same passage he states that the Persians apparently considered these horses sacred. Whether or not they were white, he does not say. Besides mentioning ten Nisean horses in Xerxes' procession leaving Sardis, he describes a sacred chariot drawn by eight white horses.<sup>35</sup> Strabo, in speaking of the Parthian horses during Roman times, says that they were not like Greek horses, or any others in the Greek world. He does state, however, that they were like the Nisean horses which the Achaimenid kings of Persia bred in the fifth century.<sup>36</sup> From Arrian, too, we learn that Nisean horses were still famous in the fourth century. He

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<sup>28</sup> Strabo 215.

<sup>29</sup> Livy XXIV 5.

<sup>30</sup> Diod. Sic. XIII 82.

<sup>31</sup> Herod. III 90 ff.

<sup>32</sup> *Ibid.* VII 113.

<sup>33</sup> Strabo 524.

<sup>34</sup> *H. A.* IX 50.30 or Par. 632a.

<sup>35</sup> Herod. VII 40.

<sup>36</sup> Strabo 524.



speaks of them in his account of Alexander the Great's expeditions.<sup>37</sup> From the descriptions of the horses of Asia Minor it would seem that those generally in use there were large, sturdy, swift horses, scientifically bred, and that white horses were probably not so rare as in the rest of the Greek world.

When the Greeks planted the colony of Cyrene in North Africa in 632 B. C. they must have found the so-called Libyan horse there. Bellerophon's horse, Pegasus, who, according to legend, sprang from Medusa's neck when Perseus slew her,<sup>38</sup> was believed to have come from that region. It is interesting to note that, in the same century when Cyrene was founded, both chariot and horseback races were first introduced at the Olympic games. Horseback riding in Homer's time must have been rather uncommon, owing to the small size of the original Greek horse. When Odysseus gets astride a single beam from the shattered raft like one riding horseback, Homer's description is such as to lead us to the conclusion that this was most unusual.<sup>39</sup> Horseback riding was considered almost a circus-like trick, if we are to judge from another passage in Homer where a man is described riding four horses at full speed, and springing from the back of one to another.<sup>40</sup> It was not until the Greeks obtained Libyan horses, according to Herodotus, that they learned to yoke four horses to a chariot.<sup>41</sup> True quadrigas are not the rule in the Homeric poems. Only in two instances are four horses yoked to a chariot, and even then the two outer are really trace horses, and not a direct part of the span.<sup>42</sup> Hero-

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<sup>37</sup> *Exp. Alex.* VII 13 ff.

<sup>38</sup> Pindar, *Ol.* XIII 63; Paus. II 4.4. The scene occurs often in Greek art. Cf. especially the Attic lekythos in the Metropolitan Museum, *Bull. Metr. Mus.* II, 1907, figs. in pp. 82-83.

<sup>39</sup> *Od.* V 371.

<sup>40</sup> *Il.* XV 679.

<sup>41</sup> Herod. IV 189.

<sup>42</sup> *Il.* XI 699-702; *Od.* XIII 81. See an article by Körte, *Hermes*, 1904, pp. 229 ff., who, from the numbers of *ex voto* offerings of bigae at Olympia, concludes that they go back to very ancient times indeed.



dotus' statement concerning the use of four horse chariots as coming from Libya is probably correct, especially since quadriga races were first introduced at the Olympic games only in the seventh century.<sup>43</sup> This must have had a tremendous effect on contemporary military tactics.

The Libyan horse was superior to the Greek, for it could be ridden horseback without any loss of speed. It must therefore have been a strong well-built animal when the Greeks first found it in North Africa.<sup>44</sup> The Cyreneans were very probably the first to recognize the excellence of the breed. They crossed it with the horses they brought along with them from Europe, and, as a result, from the very start the horses of Cyrene were famous. Pindar sings of Cyrene famous for good horses.<sup>45</sup> He also tells of the Therans who settled the place and thus fulfilled the prophecy of Medea, urging them to take swift mares instead of dolphins, and reins instead of oars.<sup>46</sup> Callimachus of Cyrene, according to Strabo, sang of his home famous for horses.<sup>47</sup> Another ancient author relates that the Cyreneans, among other things, sent to Alexander the Great three hundred war horses, evidently a gift of very great value.<sup>48</sup>

The Libyan strain from North Africa soon spread over the whole Greek world, especially Sicily and Magna Graecia, wherefore at a very early date these regions achieved the reputation of having the best horses and cavalries in the whole Greek world. Of the fourteen victories celebrated by Pindar, twelve were from Sicily and Cyrene, while two only were from Greece proper, Athens and Thebes. The people of Thurii,

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<sup>43</sup> Paus. V 8.7, introduced in 680 B. C.

<sup>44</sup> See article, "Pferd," in *RE* vol. XIX, p. 1440, lines 65 ff., for a discussion of the Libyan horse. The author, Steier, quotes Aelian, *N. A.* III 2, who wrote in the second century A. D., and who described Libyan horses as fast, well-built, and sturdy; cf. Oppian, *Cyn.* II 253 (*ἰππόβοτος Λιβύῃ*); Cyrene was also famous for draught horses, Aristoph. *Byz.* II 591.

<sup>45</sup> *Pyth.* IV 1.

<sup>47</sup> Strabo 837.

<sup>46</sup> *Ibid.* IV 17.

<sup>48</sup> Diod. Sic. XLIX 2.

according to Tacitus, first taught the Romans horse racing.<sup>49</sup> The horses of the Sybarites were especially intelligent and graceful, having been taught to dance. In the war between the Sybarites and the Crotonians this proved their undoing. The Crotonians sent flute players to play the horses' dance music; whereupon the Sybarite horses reared up, unseating their riders who thus fell an easy prey to the enemy.<sup>50</sup>

The exact appearance of the original Libyan horse is not known, except that it was probably reddish brown, that is, bay colored. Homer relates how Diomedes was very anxious to capture the horses of the Trojan hero Aeneas.<sup>51</sup> They were of a special breed given to Tros by Zeus himself as payment for Ganymede. Anchises stole the blood of these horses by surreptitiously putting his mare to their stud. Of the six foals born, he kept four and gave Aeneas two. Homer describes these horses rather carefully, saying that one was reddish brown, *φοῖνξ*, that is, bay-colored, and marked with a white spot round like the moon on the forehead.<sup>52</sup> Diomedes, driving these horses, easily wins the race at the funeral games of Patroklos.<sup>53</sup> The horses of the other competitors were of the usual kind mentioned by Homer, fair-maned, and apparently bred in Greece. The bay horses of Diomedes are the only ones of that color mentioned in the Homeric poems. Comparing the scanty descriptions given in the literature with Egyptian wall paintings and other objects, we gather that the North African horse, that is, the Libyan, was a spirited animal with a high-set tail, a finely arched neck, and a small triangular head.<sup>54</sup>

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<sup>49</sup> *Annales* XIV 21.

<sup>50</sup> Pliny, *Nat. Hist.* VIII 157; Athenaeus XII 520.

<sup>51</sup> *Il.* V 285 ff. XXIII 290.

<sup>52</sup> *Ibid.* XXIII 454-5.

<sup>53</sup> *Ibid.* XXIII 500 ff.

<sup>54</sup> See Maspero, *Art in Egypt*, London, 1921, p. 162, fig. 282, an ostrakon in the Cairo Museum, of XXth Dynasty date, reign of Rameses IV; also p. 185, fig. 359, a bas-relief of the time of Seti I, XIXth Dynasty, from Karnak. A very interesting skeleton of a horse, not mummified but wrapped in bandages, was discovered on

The evidence from contemporary literature seems to point to three types of horses in the Greek world: the European, the Asiatic, and the Western; the latter, those of North Africa and Sicily and Magna Graecia whose major blood strain was Libyan. By historical times the original strains of the Greek world were thoroughly confused by continual crossing and re-crossing. Generally, the "European" horse seems to have been a small, shaggy animal with a long mane and a flat nose. It was very often dun-colored, that is, light greyish brown, and rarely white. The "Asiatic" type, highly mixed from the very earliest times, was a large horse, rather strong and swift, of unknown color, with white horses more common than among the "European" type. The "Western" type was a very strong swift horse, well-adapted to four-horse hitching and especially for horseback riding. It was greatly desired for breeding purposes after the continued success of the local race horses and cavalries in the West.

The three types of horses deduced from literature are by no means three *specific races* or *breeds*, but merely three divisions into which the horses mentioned and described may be classified. Moreover, since it is certain that from the very earliest times the Greeks consciously sought better strains for breeding purposes, the types current during the historical times must have already been completely mixed. Even as far back as Homer's time, horse breeding was carried on in a

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the west bank of the Nile at Thebes near the tomb of Sen-Mût, XVIIIth Dynasty, *BMMA* XXXII, 1937, Jan. Sec. II, pp. 8 ff., fig. 17.

Perhaps the earliest example of the horse in Egyptian art is to be seen on an axe, dated in the first half of the XVIIIth Dynasty. See Wilkinson, *The Ancient Egyptians*, London, 1878, Vol. I, p. 278; Budge, *Archaeologia* LIII, 1892, p. 91, pl. III 2; Erman, *Aegypten und Aegyptisches Leben im Altertum*, Berlin, 1886, p. 652; Hall, *LAAA* XVIII, 1931, pp. 3-5, pl. I. Note the finely arched, high-set tail, and the very triangular head, the muzzle almost coming to a point, and the very large dimension of the distance from the forehead to the mandible. A similar horse is to be seen on a wall painting from the tomb of Sebekhetep at Thebes, of middle XVIIIth Dynasty date, Hall, *loc. cit.*

rather scientific fashion. The Eleans obviously kept mares in large numbers for breeding purposes, and these were coveted by others, as the story of Nestor's raid reveals.<sup>55</sup> Nestor's horses, driven by Antilochos in the races at the funeral games of Patroklos, were bred by Nestor himself at Pylos.<sup>56</sup> The story of Aeneas' horses, coveted by Diomedes, points to the great interest in getting good studs either by fair or foul play. The Alcmaeonidae were excellent horse breeders and raised race horses to win at Olympia according to Herodotus (VI, 125). Thessaly especially provided fine horses from the days of Homer on (Homer, *Iliad*, I, 154; Herodotus, V, 63; Thuc., I, 107; II, 22; Soph., *Elec.* 703). Bucephalus, the famous horse of Alexander the Great, came from a stud farm at Pharsalus in Thessaly (Arrian, *Anab.*, V, 19, 5). But Boeotia (Soph. *O. C.*, 668) and Arcadia were also famous for their horses (Varro, II, 1, 14; IV, 12; VI, 2; VIII, 3).

The many references to horses of other than dun, white, and bay colors point to the existence of the custom of cross-breeding. Chestnut, blue-black, and iron-grey, for example, can only mean that the three types, by analogy the three primary colors, were mixed to produce the secondary. In the "Clouds" Aristophanes presents a young bounder who runs his father into debt buying race horses. Pasion, the money lender, sues the old man for twelve minae which he had borrowed to buy his son a "starling" colored horse, *ψαρός*. Aristotle says that *ὁδε ψαρός ἐστι ποίκιλος*, meaning a bluish-black animal with speckles, that is, iron-grey, the natural result of crossing a dun with a bay,<sup>57</sup> in other words the crossing of the little dun "European" horse with one of Libyan ancestry, quite a reasonable way of getting a fast horse. In describing the color of the bison of Paeonia in his time, Aristotle says their color was a mixture of ash and red, that is, like that of horses termed *paroai*, *παρῶαι*, reddish brown, the color

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<sup>55</sup> *Il.* XI 680 ff.

<sup>56</sup> *Ibid.* XXIII 303.

<sup>57</sup> *H. A.* VIII 18.

of the snake sacred to Asklepios.<sup>58</sup> This must mean chestnut colored, the result of mixed breeding.

In Strabo's time horses were bred in Greece proper. He says that there was a lot of open space in Arcadia, and that a good breed was raised in that region. Other good breeds, he continues, came from Argolis, Epidauros, Aetolia, and Acarnania.<sup>59</sup>

Aristotle, in his *Historia Animalium*, devotes some passages to the subject of the proper breeding time for horses. He judged the suitable time for breeding could begin at two and one-half years of age, but was better after the horse achieves full sexual maturity, when it stops shedding teeth, that is, about four years of age.<sup>60</sup> In the same passage he states that the Scythians used pregnant mares for riding in cases when the embryo had turned rather soon in the womb, so as to make for an easier delivery. Elsewhere he writes, "The horse and the mare are, at the earliest, sexually capable and sexually mature when two years old; the issue, however, of parents of this age is small and poor."<sup>61</sup> Further on he says that it is better to breed horses after three years. The stallion is capable up to thirty years, but is at his best up to twenty; the mare up to forty. This seems too extended a period of productivity, but he could perhaps have meant the minimum and maximum, not the average limits.

He also discusses the proportion of horses at various ages,<sup>62</sup> when first born and when older, in comparison to other animals. ". . . not so with the quadruped animals: their lower portion is biggest at the beginning, and as time proceeds the top portion grows (i.e., the trunk, the portion between the head and the seat). Thus foals are quite as high as horses, and at that age a foal can touch its head with its hind leg, but not when it is older." The latter is an absolutely correct observation.

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<sup>58</sup> *Ibid.* VIII 32 (630<sup>a</sup> 29).

<sup>59</sup> Strabo 378.

<sup>60</sup> *H. A.* VI 21.

<sup>61</sup> *Ibid.* V 14. 10; cf. VI 22. 20.

<sup>62</sup> *De Partibus Animalium* IV 10. 5 ff.; cf. *H. A.* II 3.

In contrast to Aristotle, who represents the academic or scientific point of view, Xenophon writes for the layman. Two minor works of his deal entirely with the horse, "On Horsemanship," *περὶ ἵππικῆς*, and "The Cavalry Commander," *ἵππαρχικός*. The latter is more a treatise on cavalry tactics and the training of horses and men for a cavalry. The treatise on horsemanship can serve as a guide for the novice in equine matters even today, just as it probably did in Xenophon's time.

The first bit of advice he gives the cavalry commander might also have been included in the treatise for the novice. He says, "You must see that the horses get enough food to stand hard work, since horses unfit for their work can neither overtake nor escape. You must see that they are docile, because disobedient animals assist the enemy more than their own side. And horses that kick when mounted must be got rid of, for such brutes do more mischief than the enemy. You must also look after their feet, so that they can be ridden on rough ground, for you know that whenever galloping is painful to them, they are useless."<sup>63</sup> The latter bit of advice applied to Greek horses especially, because they were unshod. He repeats this advice in the other treatise too, cautioning prospective horse buyers to make certain that the hoofs are thick and solid.<sup>64</sup> Xenophon probably had in mind the time when the Spartans occupied Decelea and the Athenians, as reported by Thucydides, VII 27, had to do a lot of scouting, with the result that the horses' hoofs were worn thin, causing many of them to become lame.

Xenophon was not the first to write on the theory of horsemanship, and the training and care of horses. He himself mentions an earlier treatise by Simon,<sup>65</sup> who also appears as a member of the chorus of knights in one of Aristophanes' plays.<sup>66</sup> Xenophon says that Simon dedicated a bronze horse in the Eleusinion, and recorded his own feats in relief on

<sup>63</sup> *Cav. Com.* I 3 ff.

<sup>65</sup> *Ibid.* I 1.

<sup>64</sup> *Horsemanship* I 1 ff.

<sup>66</sup> *Knights* 242; *Clouds* 351, 399.

the pedestal. A fragment of Simon's work is in existence, but not enough to give an idea of what he had to say.<sup>67</sup>

From the writings of Aristotle and Xenophon alone we readily recognize that the Greek attitude on matters pertaining to horses was very scientific. Obviously, a long history of thought on and practice in hippology preceded this advanced state of affairs in the fourth century. Their approach to horses and horsemanship was quite modern and efficient, and was based on both theoretical and practical considerations. Xenophon's advice, for example, on how to recognize and evaluate "beauties" and "blemishes" is fundamentally the same as that proffered by two such excellent modern authorities as Goubaux and Barrier in their monumental book, *The Exterior of the Horse*. Xenophon may be used today with confidence as a handy pocket manual that can be relied on by those about to buy a horse, and who wish to know some simple, but important, rules to follow in doing so.

Before looking at a few miscellaneous monuments, it must again be stated that the three types spoken of above do not represent specific breeds or races of horses. A second consideration to be kept in mind is the artist's attitude which is concerned merely with making a representation of a horse, not necessarily of a specific breed. Nevertheless, it is sometimes possible to recognize the type with which the artist was familiar. For example, on a frieze from a tomb from Xanthos, now in the British Museum (Fig. 36), two distinct types of horses are seen next to each other.<sup>68</sup> A youth is walking beside a large horse with a very deep trunk, small oblong head, and low-set, drooping tail, apparently an "Asiatic" type. Immediately behind this horse in the procession depicted on the frieze are two shaggy-maned horses yoked to a chariot. They are small and have better-shaped heads. The head of the man

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<sup>67</sup> *Corpus Hippiatricorum Graecorum* II 228-231.

<sup>68</sup> *BrBr*, pl. 102; Pryce, *Catalogue of Sculpture* II, part I, pp. 141 ff., pl. XXX; Richter, *Animals*, p. 17, fig. 64; Smith, *Catalogue* I, no. 86, 1 and 2.



next to the large horse is seen projecting just above the withers, while the figures near the chariot horses tower over them. The latter seem to be the small "European" type.

Very little can be determined as to breed from the examples of geometric date. All that can be said is that even in those early days the desirability of a high-set tail and finely arched neck were recognized as indications of fine breeding, which in fact they are.<sup>69</sup> Xenophon cautions the prospective buyer to see that the neck does not hang down like a boar's, but that it stands up straight like a cock's, and yet is flexible.<sup>70</sup>

The three types seem to occur on the monuments whose provenance is also that of the type. In other words, the examples of the horses from Athens are usually the smaller "European" type, those from Sicily and Magna Graecia the larger, more graceful "Western" type, and those from Asia Minor the large, bulky, heavy-set "Asiatic" type.

The outstanding examples of the "European" type, and also those of finest workmanship, appear on the Parthenon frieze. The horses depicted there are of a very good breed, very likely a cross between the "European" type and some blood strains of the "Western" type. The same sort of horse is seen on the frieze of the Temple of Apollo at Bassae.<sup>71</sup> Examples from the archaic period of the same type are recognizable on the frieze of the Treasury of the Siphnians at Delphi, in Nos. 697 and 700 in the Akropolis Museum, Athens, and in the famous solid cast bronze horse in the Metropolitan Museum, New York.<sup>72</sup>

One of the best examples of the "Asiatic" type, and also perhaps the most typical, is that of the quadriga group which

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<sup>69</sup> See Chapter II below, The Geometric Period, for some fine examples, especially in *Bronze Division B* (Fig. 7).

<sup>70</sup> *Horsemanship* I 5 ff.

<sup>71</sup> See Chapter V below (Parthenon Figs. 38-45; Bassae Figs. 47-48) for analyses of these two groups of horses.

<sup>72</sup> See Chapter IV below (Siphnian Treasury Figs. 25-27; Akropolis Nos. 697 and 700 Figs. 28-30; Bronze Horse in New York Fig. 31) for analyses of these horses.



surmounted the pinnacle of the pyramid atop the Mausoleum at Halikarnassos, now in the British Museum.<sup>73</sup> The horse has a full deep trunk, a rather short squarish head, and is bulky in build throughout. Another example of the "Asiatic" type is the larger of the two horses from the frieze of a tomb at Xanthos mentioned above. The horses from the east pediment of the Temple of Zeus at Olympia, although not from Asia Minor, can still be classified as "Asiatic." The horses are very large animals, and, although not so heavy-set as those of the quadriga of the Mausoleum, still they have the oblong angular head and low-set tail associated with the type.<sup>74</sup>

The finest examples of the "Western" horse, that with the greatest infusion of Libyan blood, are best seen on the various coins of the city of Syracuse. Since the city was so proud of its race horses and cavalry and since interest in horses ran higher in the West than in other parts of the Greek world, it is more likely than not that the horses depicted on the coins probably bear a close resemblance to the horses actually in use there. One of the earlier and better examples is to be seen on the famous Demarateion Dekadrachm issued soon after 479-478, B. C.<sup>75</sup> The long rangy character of the animal, the finely shaped triangular head, the gracefully arched neck and the high-set tail are immediately apparent. Some of the most beautiful examples of this type appear on the dekadrachms of the Kimon and Euainetos types issued at the end of the fifth century.<sup>76</sup> The same beautiful and graceful proportions, the harmonious play of the parts, the high-set tail, the triangular-shaped head, and the finely arched neck are still distinctive elements.

The shape of the head is perhaps the most distinguishing feature of the type, and indicates the extent of good breeding.

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<sup>73</sup> See Chapter VI below (Fig. 55) for an analysis of this group.

<sup>74</sup> See Chapter V (Figs. 33-35) below for analyses of these horses.

<sup>75</sup> See Chapter IV below (Fig. 32) for an analysis of this horse.

<sup>76</sup> See Chapter V below (Fig. 49) for an analysis of this type.

The "Western" horse was, as is the modern Arabian horse, distinguished by a triangular head. A head found near Tarentum, now in the British Museum,<sup>77</sup> when compared with Helios' and Selene's horses from the Parthenon, reveals this distinctive trait unmistakably.<sup>78</sup> Selene's and Helios' horses' heads measure, from poll to muzzle, exactly twice the distance from the inferior limit of the check or mandible to the top of the forehead. On the other hand, the Tarentine horse's head, apparently of late fourth century date, is just about one and a half times this dimension in length, making the head extremely triangular in shape. The same triangular head is seen on some Carthaginian coins from Sicily.<sup>79</sup>

Even if our knowledge of the breeds of horses were absolutely complete, this would not be of direct importance to an investigation dealing with the horse in Greek art. Any information we may have on this subject may be considered only as an interesting footnote. The Greek artist was not consciously concerned with depicting the particular breed of the horse which happened to be his subject. He was primarily interested in making a representation of the horse as best he knew how. Just as an ethnological study of any one branch of the human race cannot be based entirely on the extant contemporary art of the people in question, an art in which they represent themselves, by the same token, neither can a study of the breeds of horses be based entirely on an examination of the monuments.

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<sup>77</sup> Smith, *Catalogue* III, p. 217, no. 2128; Michaelis, *JHS* III, 1882, p. 234, pl. 24.

<sup>78</sup> For the Parthenon heads see Chapter V below (Fig. 46).

<sup>79</sup> Imhoof-Blumer and Keller, *Tier- und Pflanzenbilder*, p. 12, pl. II 13; Head, *Guide to the Coins of the Ancients* (Dept. of Coins and Medals, British Museum), p. 68, pl. 35, nos. 36 and 38.

## CHAPTER II

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### THE GEOMETRIC PERIOD 925-650 B. C.

The "geometric" artist was not necessarily concerned either with naturalistic or realistic representations of nature. Very often he gave no more than a stenographic or "essentialistic" representation of nature conjured up in pleasant designs far removed from reality. The canons of proportion and the delineation of anatomy in the geometric period, therefore, are quite different from those pertaining to the live horse or, for that matter, to examples from later periods of Greek art. So-called "geometric" art, which by an extended use of stylisation reduces the essential elements of the subject to a simple design, is, therefore, a highly sophisticated style, for it does abide by definite and strict canons, contrasting in this respect with works of a purely primitive kind. When naturalistic criteria are applied, it is immediately observed that, although these very early stylised horses do not show natural proportions or anatomy, they do follow a canonical system of anatomy and proportion all their own. It must be noted, however, that not all objects from the geometric period are stylised, and that others vary in respect to greater or less stylisation.

In treating of the horse during this period, the different media employed by the artist must be kept in mind. The techniques of bronze, of terra cotta, and of vase painting are sufficiently dissimilar to make two objects, though of contemporary date, appear entirely different because of the different materials employed. Also, the stylistic quality of geometric art is achieved quite disparately in the various media. The easy flowing brush work permits the extremest stylisation in vase painting, while the clumsy lumps of fragile clay allow the least in terra cottas. The criterion employed in

classifying the various objects listed below is not necessarily based on naturalistic concepts. Rather the classification rests on the similarity or dissimilarity of certain details of rendering.

### 1. VASE PAINTING

An examination of some of the early geometric vases, those of the Dipylon style particularly, supplies sufficient evidence to justify the statement regarding extreme stylisation in that medium.<sup>1</sup> In the very earliest examples the artists have not yet included the fetlock or the carpus joint, although the hock joint appears. In the earlier examples the cannon is exceedingly long, a characteristic of all painted horses of geometric date, but not necessarily of contemporary examples in other media.

Other vases of the Dipylon style may be considered more advanced because the other joints of the members—elbow and stifle, hock and carpus, fetlock and hoof—are shown (Fig. 5).<sup>2</sup> An interesting vase from Rhodes of the well developed geometric style already manifests a growing naturalism and a partial abandonment of stylisation.<sup>3</sup> The trunk, although still long as previously, is fuller. The cannon is still very long, but the neck shorter than on the Dipylon vases, while the head has a reserved spot with a dot in the middle to indicate the eye.

### 2. BRONZES<sup>4</sup>

#### DIVISION A

##### 1. Hampe and Jantzen, "Bericht über die Ausgrabungen in

<sup>1</sup> Morin-Jean, *Le dessin des animaux en Grèce*, p. 15, fig. 2.

<sup>2</sup> Pijoan, *Outline History of Art*, I, pp. 190, 191, three vases in the Metropolitan Museum, New York; Richter, *Handbook MMA*, pp. 46 ff., figs. 27, 28; Morin-Jean, *op. cit.*, p. 16, fig. 3, no. A 517 in the Louvre; Rayet and Collignon, *Histoire de la céramique Grecque*, pl. I; *MontInst* IX, pls. 39, 40; Buschor, *Greek Vase Painting*, pl. XI.

<sup>3</sup> Pottier, *Vases antiques du Louvre* I, no. A 286, pl. 10.

<sup>4</sup> The bronzes have been divided into five divisions, the terra cottas into four. First the bronzes are analysed, then the terra cottas. The matter of dating is discussed after the analyses are given.

Olympia, 1936-1937," in *JdI* LII, 1937, p. 42, fig. 18 (my Fig. 6). a. Slightly tapered head with a rim-like muzzle. b. Ears upright like a donkey's. c. Non-blade-like neck. d. High croup. e. Eye sockets are protruding bumps. f. A peculiar "Adam's apple" projection on neck.

This example is very much like nos. 157 and 158 on pl. XI, *Olympia* IV,<sup>5</sup> which may be considered slightly earlier because of the lack of eye sockets. However, no. 157 must be closely grouped with no. 198, *Olympia* IV, pl. XIII.

2. *Olympia* IV, no. 198, pl. XIII. Its features are like those of no. 1 above, except for the lack of the "Adam's apple." In addition, the fetlock and the carpus are shown. The trunk is rather pinched and shorter, so that the croup is a little more elevated.

The distinctive elements of this division develop further, and so are classed below in *Division C*, which, because certain joints appear more often here, is to be considered as later than *Division A*, and in part as even later than *Division B*. The latter is of a different style and seems more or less an independent development. Those examples which I class in *Division A* Furtwängler believed to have imitated a terra cotta technique, in contradistinction to those which were made with a hammering and bending technique.<sup>6</sup>

DIVISION B (cf. my Fig. 7).

1. *Olympia* IV, no. 200, pl. XIII. a. Blade-like neck. b. Blunderbuss head. These are the outstanding characteristics of this division. c. Eyes are globular, *kugelartig*. d. Ears are long and thrown forward. e. Legs slat-like showing no joints. Trunk is pencil thin, but short. g. Tail long, reaches ground.
2. *Ibid.*, no. 200a, pl. XIII. Shows same features as no. 200. In addition the carpus and hock joints are indicated by means of little thorn-like projections placed rather high on the members. The head is definitely blunderbuss, and the members slat-like. The figure is enhanced by some decorative concentric incised circles. There is no indication of the eye.

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<sup>5</sup> Furtwängler, *Olympia* IV, *Die Bronzen* etc.

<sup>6</sup> *Olympia* IV, pp. 28 ff.

3. *Ibid.*, no. 222, pl. XIV. The anterior members are gone. Same features as in nos. 1 and 2 above. The hock is shown by means of a spur-like projection. The thigh and the buttock are fuller, while the legs are rounded. The trunk is no more than a short tube. There is no eye.
4. *Fouilles de Delphes* V, p. 46, fig. 138. Same features as nos. 1, 2, and 3 above. Anterior members begin as slats and descend round. The carpus is indicated by means of a bump. The head is not extremely blunderbuss-shaped. The trunk is longer than in nos. 1, 2, and 3.
5. *Ibid.*, p. 49, fig. 157. As those above. Neck is extremely blade-like, members are especially thin. Show hock. The anterior members are missing.
6. Richter, *Animals*, fig. 49; Richter, *BMA XVIII*, 1923, p. 75; *Master Bronzes* (Buffalo), no. 63. This is perhaps the most highly developed of all the examples in this division. It is of the highest finish, shows extreme stylisation. Especially noteworthy features are the long trunk, the full thighs, and the working of the hock and carpus joints. The latter are marked by a cutting into the member, thus breaking the contour line so as to form a little shelf about half way down (cf. Fig. 7).
7. Rodenwaldt-Hege, *Olympia*, p. 19, fig. 6.

The horses in *Division C* have some of the characteristics of those in *B*, and also of those in *A*. But they are probably later than either group because of the attempt to render a larger number of joints, and a more naturalistic trend in rendering the rest of the anatomy.

#### DIVISION C

##### Group I

1. Waldstein, *Argive Heraeum* II, no. 8, pl. LXXII (my Fig. 8);
2. *Fouilles de Delphes* V, p. 46, fig. 140. a. Besides the carpus and hock joints, these two examples also show the elbow and stifle joints. b. They retain the blade-like neck of *Div. B*. c. The mandible and cheek are differentiated where the head joins the neck. Thus the attachment of the head is indicated.

##### Group II

3. *Olympia* IV, no. 223, pl. XIV. Is generally more advanced in some features, and besides shows a. The fetlock and hoof.

The others are on stands which may account for the absence of the hoof, but not the fetlock. b. The head is blunderbuss-shaped as in *Div. B*. c. The orbital sockets definitely protrude and are not attached globules as was the case with some of the examples in *Div. B*. d. The forehead and the face lines are differentiated. e. The ears are short, but reminiscent of those in *Div. A*, except that they sweep back from the cheeks in concave contours. f. The neck is still blade-like. g. The trunk is short, but fuller than nos. 1 and 2 above, or those in *Div. B*.

4. *Ibid.*, no. 197, pl. XIV. Shows the same features as no. 3 above, except that the stifle joint is not strongly indicated, and there are no hoofs, perhaps because of the stand. a. The trunk is longer and slightly fuller than nos. 1, 2, and 3 above. b. The neck, while blade-like, is not so sharp as on the other examples in this division. c. The head is not blunderbuss, but tapers. d. The ears are like those of no. 3 above, but more pronounced, so that a very sharp boundary is marked off between the neck and head.
5. *Ibid.*, no. 217, pl. XIV. Same as no. 4 above, except that there are no elbow joints. The thigh and the forearm are fuller. The head is more like no. 3 above, that is, a modification of the blunderbuss shape. It must be considered comparable to no. 4 above with the addition of a slightly flaring rim at the end of the muzzle. The trunk is shorter and fuller.
6. *Ibid.*, no. 295, pl. XVIII. Repoussé work. It is very much like no. 4 above. The whole of the drawing is not clear, but the hock and fetlock are discernible.

The examples in the next division (*D*) were all found at the Argive Heraeum, and are distinct from the examples in all the preceding divisions. It is difficult to place them within the relative chronological scheme. For, while they do not show as many joints as the examples in *Divisions C* and *B*, they nevertheless cannot be considered earlier in date because of their otherwise advanced aspect. Like *Div. A* (wholly from Olympia) and *Div. C* (partly from Olympia) they represent, no doubt, a local style, that at Argos. Examples of *Div. B*, on the other hand, are widespread in Greece, and have been found not only at Olympia, but also in Athens,

Sparta, Lusoi, and Elatea.<sup>7</sup> At any rate, as the analyses below show, the division with which they have the most in common is *C*, above. They can therefore be judged as at least contemporary in date with the examples of *Div. C*, not later surely; perhaps earlier, because of the solid bases (those from Olympia are cut out in patterns) on which they stand.<sup>8</sup>

#### DIVISION D

1. *Argive Heraeum* II, p. 197, no. 10, pl. LXXII. Head is missing. a. The trunk is full but rather pinched, almost spool-like, forming a deep valley between neck and croup. b. Hock is barely indicated, while carpus not at all. c. Rounded appearance generally. The roundness and the spool-like trunk are distinctive in this division.
2. *Ibid.*, p. 198, no. 11, pl. LXXII. Same general roundness. a. Neck is definitely not blade-like. b. The forelock is distinct. c. There are no ears. d. The head is long and tapered, the attachment to the neck is unmarked. The neck is short. f. Hock is indicated. g. Carpus is shown by the forward bend of the anterior members. h. The tail is long and reaches to hoof level. i. Spool-like trunk.
3. *Ibid.*, p. 198, no. 12, pl. LXXII (my Fig. 9). Also rounded in appearance, but spool-like trunk is not in evidence, while, a. The mane is very much exaggerated, almost like a rooster's comb. b. The neck is broad and non-blade-like, and it is extremely short. c. Attachment of head to neck strongly marked. d. The head is small and without any particular shape. e. No ears.
4. *Ibid.*, p. 199, no. 13, pl. LXXIII. Shape of members very much like no. 1 above, and like it in many other respects too. a. Spool-like trunk. b. Non-blade-like neck. c. Head like no. 3 above. d. No ears. e. The eye is incised. This incised eye is unique in the examples studied thus far, but it is seen in the later examples, in *Division E*.

*Division E* is divided into two groups, the first containing examples of horses used as decorative figures on tripods. The

<sup>7</sup> Richter, *BMMA* XVIII, 1923, p. 75.

<sup>8</sup> Examples of *Div. B* and *C* type were found in the same deposit at Perachora, Payne, *Perachora* I, p. 126, pl. 37, no. 4, 7—*B* type, no. 8—*C* type.



second group comprises free-standing examples which display mingled elements of stylisation and naturalism.

#### DIVISION E

##### *Group I*

1. *Olympia* IV, no. 607, pl. XXXIII. a. Mane has incised lines. b. Tapered head. c. Hock is distinct, carpus is lacking. d. Trunk is long, but full. e. Mandible marked, attachment of head to neck indicated. f. Short thorn-like ears. g. Incised eye. h. Thighs and forearms full. i. Tail long.
2. *JdI* LII, 1937, p. 68, fig. 30 (my Fig. 10). Displays same features as no. 1 above, but is more highly finished. Is somewhat slighter and more slender in build. a. Head long and tapered, underside squared off, top of face slightly concave. b. Attachment of head to neck well indicated. c. Ear is short. d. Mane and forelock decorated with incised lines. Eye incised. f. Carpus and hock joints shown. g. Trunk tubular.
3. *Fouilles de Delphes* V, p. 49, fig. 154. Has less finished appearance than the two examples above. a. Neck is thrust forward. b. Mane has decorative incisions, and also saw-tooth edge to indicate hair. c. Trunk is fuller and reminiscent of the spool-like trunks in *Div. D*. d. Head is very small. e. Carpus and hock joints are shown.

*Group II* of this division reveals a departure from the strict stylisation of *Div. B*, and at the same time a lessening of the already softened stylistic qualities of *Group I* above. Yet, side by side with definite tendencies toward naturalistic methods of rendering, some of the old stereotyped formulae persist. They grow weaker, however, until the method becomes almost naturalistic.

##### *Group II*

4. *Olympia* IV, no. 190, pl. XIV (my Fig. 11). a. Head unique in shape. Tapered from muzzle to poll, but face and forehead lies differentiated. b. Ears are reminiscent of those in *Div. C*, II, *Olympia* IV, no. 197, pl. XIV. c. Neck is blade-like. d. Trunk long and thin. e. Tail short. f. Members very natural-looking with cannon in about correct proportion to rest of member. g. Hoof is realistically shaped, but pastern

is incorrect. h. Carpus and hock joints indicated by swelling.  
i. Fetlock good, rather subtle.

5. *Fouilles de Delphes* V, p. 49, fig. 155. This example is even more developed, for there is a strong semblance of naturalism in the relation of the head to the neck, and of the latter to the trunk, in addition to the naturalistic rendering of the members as in no. 4 above. a. Head is modeled, almost natural in shape. b. Trunk, although long, is not tube-like, but deeper anteriorly than behind, extending to the inguinal region in a slight curve.
6. *Argive Heraeum* II, no. 17, pl. LXXIV. a. Retains the broad base of neck as in the earlier examples, but is fuller and not blade-like. b. The members, broken and once attached to a stand, are rounded, with the hock joint well indicated. c. The trunk is rather short and pinched, making the croup high, yet it is quite different from the spool-like trunk in *Div. D* to which this example is probably related.

### 3. TERRA COTTAS

The terra cottas are arranged in four divisions not necessarily contemporary with similarly labelled divisions in the bronzes. The task of classifying and arranging the terra cottas is rather difficult, because they are generally scarce in the geometric period, and at Delphi and Olympia particularly so.<sup>9</sup>

The first division contains those terra cottas which Furtwängler believed were imitated by *Br. Div. A* above. Nevertheless, there are very marked differences between the terra cottas and the bronzes. The ears of the bronzes are long and erect, on the terra cottas short, cat-like, and hollowed out. The shapes of the heads, too, are quite different, but this may be due solely to the difference in materials, the clay per-

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<sup>9</sup> Perdrizet, *Fouilles de Delphes* V, pp. 200 ff. Neither in the temenos of Apollo, nor in the sanctuary at Marmaria did the excavators find any deposits of votive statuettes. It is believed that it was not customary to make votive offerings of terra cottas here as elsewhere.

Furtwängler, *Olympia* IV, pp. 43 ff., says that at Olympia fewer terra cottas than bronzes were found.

mitting more modeling than the bronze, which, however, admits of greater stylisation. At any rate, the terra cotta heads are more natural than the bronzes. Other features also mark the two as being distinct from each other.

#### DIVISION A

1. *Olympia* IV, no. 267, pl. XVII (my Fig. 12), and
2. *Ibid.* IV, no. 269, pl. XVII. a. Short round neck. The roundness may be due to the material, but not the shortness. b. Tapered head, mouth indicated. Not so on the bronzes. c. Eye is an incised circle. Also lacking on bronzes, if indicated at all, then by means of bumps. d. Short stumpy tail, thick at base. e. Short stumpy members, no anatomy. f. Small ears. g. Short round trunk. h. Mane is like a rooster's comb.

The two examples immediately above were found under the opisthodomos, and under the west pteron of the Heraion respectively. The former, at least, can therefore be definitely assigned a pre-Heraion date, that is, pre-orientalising.

3. *Ibid.* IV, no. 268, p. 43. Shows same features as nos. 1 and 2 above.
4. *Ibid.* IV, no. 272, p. 44. This one was found in the Pelopion, and is slightly different from those above. It is more slender and has a longer tail. The trunk also is longer and thinner.
5. *Ibid.* IV, no. 274, pl. XVII. This example is even more different. There is painted ornament on the anterior member, while the eye is not incised as on those above, but it, too, is painted. a. The head is very unusual. The end of the nose is not modeled as on the examples above, but is cut off like a sausage giving the appearance of a pig's snout, and is incised with two holes and a line to indicate the nostrils and the mouth. b. The mane is not cock-like, but runs down the neck and ends definitely about where the withers should be. c. The eye is painted in the form of concentric circles. It seems that the circles were reserved in the ground of the clay.

Those in the first group of the next division seem quite distinct from the examples in *Div. A*. Because they are in such fragmentary condition, it is impossible to make a complete analysis of their elements. Three examples comprise

this group, the first two from the Argive Heraeum, the third from Delphi.

#### DIVISION B

##### *Group I*

1. *Argive Heraeum* II, no. 6 (243), pl. XLVIII, p. 40. a. Pellets for eyes. b. Extremely short neck. c. Short tapered head. d. Short stumpy members. Only one extant.
2. *Ibid.* II, no. 2 (244), pl. XLVIII, p. 40. a. Short head. b. Short broad neck c. Sharp mane and forelock
3. *Fouilles de Delphes* V, no. 6333, Inv. 2877, 2877 bis, pl. XXIII 3. The man and the horse are separate. Except for the globular pellet eyes, this one is very much like the two examples immediately above. a. Very short head. b. Long broad neck, long in relation to the size of the rider only. c. No joints indicated in member.

These three examples are somewhat reminiscent of those in *Br. Div. B*. The details which point to this conclusion are: The attached globular eyes; the thinness of the neck; the general sharpness of outline, as far as it is extant; and the general stylistic quality. The terra cottas, however, are not nearly of so finished or sophisticated a design as the bronzes. There is a feeling of relationship, however, which is somewhat borne out by another but more advanced example which I place in a classification by itself.

##### *Group II.*

4. *Argive Heraeum* II, no. 13 (76), pl. XLVIII (my Fig. 13). The trunk is a connecting element between the fore and hind quarters, not unlike the trunk in *Br. Div. B*. a. Short head. b. Eye socket protrudes. c. Broad neck, very reminiscent of blade-like neck in *Br. Div. B*. d. Trunk is narrow, but round and long. e. Croup is high. f. Neck is painted with broad stripes. g. Mane and forelock well accented, mane runs down neck.

This example may be considered a development from those in *Group I* above. Because of its marked affinity to *Br. Div. B*, we can consider its predecessors in *Group I* as being at least contemporary with the bronzes they resemble. But it is

questionable, in spite of the apparent roughness and crudity of workmanship of the examples in *Group I*, whether they may be dated earlier than *TC Div. A*, all the examples of which are from Olympia. As the next example indicates, they continued to develop as a local style, the ears being the chief clue to this relationship.

### *Group III*

5. *Olympia* IV, no. 275, pl. XVII. a. Ears are exactly like those of *Div. A* above, nos. 1, 2, 3, 4—*Olympia*, nos. 267, 269, 272, 274. b. Mane and forelock defined, painted with lines. c. Attachment of head indicated. This is the first appearance of this element in the terra cottas, except perhaps slightly in *Div. A*. The first time it appears in the bronzes is in *Br. Div. C*, I. d. The muzzle is reminiscent of *TC Div. A*, 1 and 2—*Olympia*, nos. 267, 269. e. Geometric drawing as decoration.

Because the attachment of the head appears here and in *Br. Div. C*, and since the examples in both divisions come practically from the same site, Olympia, these two divisions may be considered approximately contemporary.

*Division C* below comprises some examples of a well-developed style. They are of geometric date as indicated by the distinctive painted ornament with which many of them are adorned. Their connection, however, with the preceding two divisions is rather tenuous if the development can be considered as progressing from *A* to *B* to *C*. Those in *TC Div. C* are generally further advanced in design and finish. Most important of all, they are marked by a more naturalistic rendering of the animal as a whole, even when no further advanced or more complex anatomical details are added. It may be safely assumed that further anatomical delineation was impossible because of the material.

The series begins with some examples from Tanagra.

### DIVISION C

#### *Group I*

1. Winter, *Typen der figürlichen Terrakotten* III, part 1, p. 7, no. 1 (my Fig. 14). a. Elephant-like members. b. Short

thin tail. c. Neck rather long, with zig-zag drawing. d. Eye a dot in a reserved space. e. Ears are upright like little horns. f. The halter is drawn in.

2. *Ibid.* III, part 1, p. 7, no. 1 b; cf. Jamot, "Terre Cuites Archaïques de Tanagre," *BCH* XIV, 1890, p. 218, fig. 6. Same features as no. 1 above, except that the neck is shorter.
3. *Ibid.* III, part 1, p. 7, no. 2. Same as nos. 1 and 2, except, a. Head is very small. b. Trunk is longer. c. Eye is a dot within a drafted triangle.

The following group consists mainly of plastic horses on covers of pyxides. Stylistically and anatomically they are closely connected with those of *Group I* above.

#### *Group II*

4. Langlotz, *Griechische Vasen in Würzburg*, p. V, no. 64. a. Short tail as in *Group I*. b. Trunk is long, underside forms the crown of an arch with members as posts. c. Stumpy members. d. Slight rise in croup.
5. Schweitzer, "Geometrische Stile in Griechenland," *AM* XLIII, 1918, pl. IV 3, a pyxis in the Lambros Collection. Same details as no. 4 above, except, a. Tail reaches ground as in most bronzes. b. Neck is long. c. Rather short full trunk. Schweitzer, *loc. cit.* p. 139, considers this pyxis of the severe Dipylon style.

The next two examples are more developed anatomically, for the heads are already modeled and painted in a very lively fashion.

6. Rayet and Collignon, *Histoire de la céramique*, p. 33, fig. 18. Three horses on a pyxis cover. a. Stumpy members which descend saw-horse fashion, not vertical like those immediately above. b. Necks long. c. Small horn-like ears. d. Eyes a dot within a circle. e. Manes seem plastically rendered. f. Croups slightly elevated.
7. Winter, *Typen* III, part 1, p. 7, no. 4; 'Εφ., 1896, pl. III (my Fig. 15). From Tanagra. A quadriga. a. Stump-like members, saw-horse fashion. b. Long heavy tails, off ground. c. Long necks. d. Mane sharp, forelock accented. e. Little heads, scarcely modeled. f. Bumps indicate eye sockets. g. Croups not elevated.

The last division consists of examples which show signs of growing naturalism, which is nevertheless restricted by the nature of the material from too exact expression.

## DIVISION D

1. Winter, *Typen III*, part 1, p. 7, no. 3; cf. Jamot *BCH XIV*, 1890, p. 219, fig. 7 (my fig. 16). a. Members tapered at ends, saw-horse fashion. b. Heavy tail, thick at base, pointed at end. c. Head small, halter and mouth painted in. d. Eye painted, a dot in a circle with spurs to indicate corners. f. Forelock high. g. Mane has hair painted in long flowing curls. h. Geometric drawing on members, chest, tail—parallel lines.
2. Koester, *Griechische Terrakotten*, pl. 8; cf. *AA*, 1895, p. 127, no. 7; Winter, *Typen III*, part 1, p. 7, no. 5. a. Members tapered at ends, slant down saw-horse fashion. b. Rather heavy drooping tail. c. Head small, mouse-like with halter and nostril painted in. d. Neck is triangular in section, with mane the sharp edge. Neck is broad at the base, reminiscent of *Br. Div. B*. e. Ears are rather long, being on the forehead and go back in the same plane as the head. f. Rider is bird-faced.

## 4. RELATIVE CHRONOLOGY

Beginning with *Br. Div. A*, all the examples from Olympia, it is to be noted that, although animal figures of less developed technique were found at this site, those in this division are actually the first which can be called horses, that is, the first which can be identified as such. There is a whole series of figures which are no more than small metal "cut-outs." These "cut-outs" then develop into a second stage where the figure is also bent and hammered into the desired shape. These latter two stages are doubtless earlier than *Br. Div. A*, where the technique of casting is employed, and where the figures are recognizable as horses. In *Br. Div. B* a combination of techniques is utilized, casting, bending, and hammering.<sup>10</sup> The examples in *Br. Div. B* are widespread in Greece.<sup>11</sup>

<sup>10</sup> See *Olympia IV*, pp. 28 ff., pl. X, figs. 90-105, for the first two stages, and for a general discussion of the finds.

<sup>11</sup> See footnote 7 above.

On the basis of the sum of anatomical details included, they must be considered as beginning after the most highly developed examples in *Br. Div. A*, and then continuing to a time coeval with *Br. Div. C*, and perhaps even later.

*Br. Div. C* is a continuation of the type first seen in *Br. Div. A*, especially the examples in *Group II*, which are also from Olympia. *Group I* of this division is less developed than *Group II*, and is of the same general type. However, the examples in this latter group are from Delphi and Argos, indicating that the Olympia type of *Br. Div. A* was not necessarily a local product, but were spread abroad, developing into *Br. Div. C*.

*Br. Div. D* seems to be entirely of local workmanship, and is found only at Argos. On the basis of the anatomy delineated, the examples in this division must be at least contemporary with those in *Br. Div. C*, but not later.

*Br. Div. E* comprises two groups. The first consists of decorative horses from tripods, the second contains examples which reveal elements of stylisation mingled with elements of naturalism. They must therefore be from the end of the geometric period.

There are five broad stages of development for the bronzes: the very earliest, in which the objects do not even look like horses, is broken up into two distinctive types; then the examples in *Br. Div. A*; after that the examples in *Br. Div. B*, a universal type which continues; the fourth stage, *Br. Div. C*, which carries on the type first seen in *Br. Div. A*; and finally the fifth stage, *Br. Div. E*, which is divided into two distinctive groups. *Br. Div. D* must be considered a local style coeval with *Br. Div. C*.

*TC Div. A* is more developed anatomically than *Br. Div. A*, and must therefore be regarded as later in date. The examples from Argos in *TC Div. B I* and *II* are somewhat reminiscent of those in *Br. Div. B*, and thus may be considered contemporary. However, the examples in *TC Div. B III* are equally as developed as those of *TC Div. B I*. The objects



in *Group III* are from Olympia, and interestingly enough, resemble those in *Br. Div. C I*, and must therefore be coeval with them.

The type in *TC Div. C* does not represent a development from the previous two divisions. It is more advanced in finish and design, and begins to approach naturalism even though no new anatomical elements are added. *Group I* contains some little figurines from Tanagra, while *Group II* comprises horses used decoratively on the covers of pyxides.

Taking into account the nature of the medium, the pyxides horses are less developed than the examples in *Br. Div. E I*, the horses from tripods. Hence the terra cottas must be a little earlier than the bronzes. On the other hand, *TC Div. D* contains some examples which continue the growing naturalism of *TC Div. C*, a quality also evident in *Br. Div. E*. These, therefore, must belong at the very end of the geometric period. *TC Div. D* and *Br. Div. E* may thus be considered contemporary.

## 5. ABSOLUTE CHRONOLOGY

### SUGGESTED CHRONOLOGY FOR THE GEOMETRIC HORSES

BRONZES		TERRA COTTAS
	(?) 925-875 B. C.	
1st Stage, "cut-outs"	:	
2nd Stage, bending and hammer-	:	— — — — —
ing technique	:	
	875-825 B. C.	
Div. A	:	— — — — —
	850-825 B. C.	
Div. B continues	:	Div. B I and II
	850-800 B. C.	
Div. B	:	Div. A
	825-800 B. C.	
Div. B	:	
Div. C I	:	Div. B III
(Div. D local)	:	
	800-775 B. C.	
Div. B	:	
Div. C II	:	Div. C I

BRONZES		TERRA COTTAS	
		775-750 B. C.	
Div. C II	:	Div. C II, pyxides	
		750-725 B. C.	
Div. E I	:	— — — — —	
		725-700 B. C., perhaps to 675 B. C.	
Div. E II	:	Div. D	

The last division of the terra cottas may be safely compared with two Protocorinthian vases from the time when the geometric style gave way to Oriental influence. These vases provide us with an approximate *terminus ante quem* for the geometric horses. The first is an ovoid aryballos in the Ashmolean Museum, Oxford.<sup>12</sup> The horse is more naturalistic than stylised, although the mane is still rendered in the familiar geometric manner, and the painting is in complete black silhouette with no interior drawing. The second vase, dated by Payne in the first quarter of the seventh century, shows very developed orientalising tendencies with but few geometric traces. The mane is naturalistic. The joints of the members are rendered by means of interior drawing.<sup>13</sup>

These two vases point to the seventh century for the passing of the geometric style. There must have been considerable overlapping, however, since the first orientalising tendencies appear perhaps by the middle of the eighth century.<sup>14</sup> Horses, and, for that matter, figural representations in general, do not appear on the earlier vases, but begin to be seen only in the well developed examples of the style.<sup>15</sup>

<sup>12</sup> *JHS* XXIV, 1904, p. 295; Johansen, *Les Vases Sicyoniens*, pl. XX 1 a, 1 b, p. 185. See his chronological table at the end of the text. He places this particular vase in "époque des aryballes ovoïdes, style archaïque."

<sup>13</sup> Payne, *Protokorinthische Vasenmalerei*, pl. 10; cf. Johansen, *op. cit.*, pl. XXII 1 c.

<sup>14</sup> See Payne, *op. cit.*, for a short discussion, which supplements the work of Johansen. Also see Schweitzer, *AM* XLIII, 1918, p. 48, as well as Kahane, *AJA* XLIV, 1940, pp. 464-482, for chronologies of the geometric period in regard to other styles of vase painting.

<sup>15</sup> Robinson-Harcum, *Greek Vases in Toronto*, no. 113; a krater

Another date, at best rather vague, for the *terminus ante quem* is provided by the location of the strata at the Argive Heraeum. Most of the terra cottas from this site were found in the black layer of earth about and below the foundation walls of the second temple terrace, all of which are older than the temple or the terrace. The terra cottas were used as a fill around the temple, not unlike the deposit of debris from the Persian destruction on the Akropolis at Athens.<sup>16</sup> Waldstein's date for the temple and the terrace have since been disproved. A more certain date has been supplied by Frickenhaus and Müller on the basis of some sherds found in the foundations, pointing to the turn from the eighth to the seventh century as the *terminus post quem*,<sup>17</sup> and by way of corollary, for the terra cottas found in the strata below.

At Olympia the majority of the terra cottas are derived from strata of pre-Heraion date, namely in the neighborhood of the great altar between the Pelopion and the Heraion.<sup>18</sup> The majority of the bronzes were found in this location too, and so are also of pre-Heraion date. The date of the Heraion is not exactly certain, however, but is probably of the late orientalisising period.<sup>19</sup>

The tripod to which the bronze horse, *Br. Div. E no. 1*, was riveted has incised decoration. This can be matched by similar incisions on a strip of bronze from Prosymna.<sup>20</sup> The

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from Thebes, now in the Royal Ontario Museum, Toronto, is of late geometric date. It is ornamented with a decorative band of human figures. For Payne's discussion on this subject see *op. cit.*, pp. 10 ff.

<sup>16</sup> Waldstein, *Argive Heraeum* II: "The Terra-Cotta Figurines," by Waldstein and Chase, pp. 3 ff.

<sup>17</sup> Frickenhaus and Müller, "Aus der Argolis," *AM* XXXVI, 1911, p. 27.

<sup>18</sup> *Olympia* IV, pp. 43 ff.

<sup>19</sup> Anderson, Spiers, and Dinsmoor, *Architecture of Greece*, dated on the table following the text, 620 B.C. Dinsmoor now prefers c. 600 B.C. Rodney Young, "Late geometric graves and a seventh century well in the agora," *Hesperia*, Suppl. II, 1939, brings the geometric style well down into the seventh century B.C.

<sup>20</sup> *Olympia* IV, no. 607, for the horse and tripod. For strip of

strip of bronze was found next to the foundations of a bridge across the Revma tou Kastrou, which Blegen believes was standing in the seventh century. He considers the foundations to be of geometric date. The type of spiral decoration of both bronze objects consists mainly of a series of concentric circles connected by tangential lines "reminiscent of late Helladic spiraliform motives, and common on geometric pottery."<sup>21</sup> Bringing Furtwängler's classification of the tripods up to date, Hampe and Jantzen divide them into three classes.<sup>22</sup> The early geometric, devoid of ornament; the late geometric, which has incised designs plus figures, such as *Olympia* IV, no. 607, riveted to the rim; and a third class, which is clearly orientalising since the ornament is plastic, can be compared to some vases of the early seventh century.<sup>23</sup> If there are any figures on the rim of the third class, they are not riveted to it, but cast directly with it. No. 607, *Br. Div. E no. 1*, therefore, falls into the late geometric class, and may be dated at the very latest near the turn of the eighth to the seventh century, but more probably in the third quarter of the eighth century, before the full impact of Oriental influence is felt in Greece.

A *terminus post quem* can be derived on plausible, but not absolute, evidence. Just when the proto-geometric style was finally superseded by the geometric has not yet been definitely determined.<sup>24</sup> A highly probable and altogether possible date for the beginning of the geometric period has been advanced on the basis of two proto-geometric sherds found in Stratum III of the excavations at Tell Abu Hawam in Pales-

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bronze, Blegen, "Prosymna-Remains of Post-Mycenaean Date," *AJA* XLIII, 1939, pp. 427 ff., fig. 16.

<sup>21</sup> Blegen, *loc. cit.*, p. 430.

<sup>22</sup> *JdI* LII, 1937, pp. 65 ff., "Bericht über die Ausgrabungen in Olympia 1936-1937."

<sup>23</sup> Hampe, *Frühe griechische Sagenbilder in Böotien*, p. 21, pl. 18.

<sup>24</sup> See Kraiker and Kübler, *Kerameikos, Die Ergebnisse der Ausgrabungen*, I: *Die Nekropolen des 12. bis 10. Jahrhunderts*, pp. 162 ff., for a discussion of the date of the proto-geometric period.

tine.<sup>25</sup> These sherds are comparable to certain proto-geometric vases from Thessalian tholos tombs dated approximately 1000-850 B. C.<sup>26</sup> The upper limit is conjectural, and is based on a rough estimate of the time required for the proto-geometric style to reach a mature stage in Thessaly, after developing from the latest Mycenaean, sometimes called "sub-Mycenaean," after 1100 B. C.<sup>27</sup> The lower limit is determined from the fact that in the tombs there is an absence of geometric pottery, which subsequently became very popular, to judge from the frequency with which this ware was found in tombs of later date. The date of Stratum III at Tell Abu Hawam is judged to be about 925 B. C.<sup>28</sup> On this basis one may say that the geometric period proper begins approximately at the end of the tenth century.

Tentatively we may grant that the upper limit of the geometric period is 925 B. C., and the lower before 650 B. C. The material, the horses in this case, must now be distributed in ordered steps within this space of time. Kahane, using a *terminus post quem* of 900 B. C., based on the Thessalian proto-geometric sherds from Palestine, divides the Attic-geometric style into four phases of fifty years each, thus making a plausible but rather schematic distribution of the phases of the geometric period.<sup>29</sup>

When such a distribution is attempted for the bronze and terra cotta horses, the question arises of how universally coeval were the various stages of development of the geometric style in the different localities of Greece. Local schools, that

<sup>25</sup> Hamilton, *QDAP* IV, 1935, pp. 23-24, nos. 95-96, pls. XII, XIII.

<sup>26</sup> Heurtley, *QDAP* IV, 1935, p. 181, quotes an article by himself in *BSA* XXXI, 1933, pp. 83-88, pl. VI, and pp. 117-122, fig. 12, pl. VII.

<sup>27</sup> *Ibid.* Heurtley bases this conclusion on material from the Kerameikos, Athens, see *AA*, 1934, pp. 229-235, and from the Ionian Islands, see *BSA* XXXIII, 1935, pp. 64 ff.

<sup>28</sup> Heurtley, *QDAP* IV, 1935, p. 181.

<sup>29</sup> "Entwicklungsphasen der attisch-geometrischen Keramik," *AJA* XLIV, 1940, pp. 464 ff. Cf. note 19 above.

is, local types, did exist as far as the horses are concerned. The same is very definitely true of the vases. If local Thessalian ware points to a date of 925 B. C. for the beginning of the geometric style in Thessaly, does it, by the same token, point to a similar starting date all over Greece? <sup>30</sup>

Assuming a play of one generation either way from any given date, that is, about half a century for the movement of any one phase or stage from the most progressive to the most backward communities, and keeping this play of time in mind, we may attempt a distribution of the horses. In the case of the latter, however, we are dealing with two entirely different media, bronze and terra cotta. Differences in the technique of the two media must be distinguished from those which result from a greater or lesser knowledge of anatomy, besides those ascribable to the quality of individual craftsmanship. Moreover, we cannot assume that the first three-dimensional horses are coeval with the first to appear on painted pottery. Figures in general, and horses in particular, do not appear on the earliest geometric ware. It does not necessarily follow that three-dimensional horses were made only when painted ones appeared on pottery. By the time of the late severe geometric style, pyxides with plastic horses on the covers, those in *TC Div. C II*, appear for the first time, and thus provide a datum point within the space limits of the geometric period, 925-650 B. C. <sup>31</sup> *TC Div. C II no. 5* is a

<sup>30</sup> Kraiker and Kübler, *Keramikos I*, pp. 162 ff., date the beginning of the proto-geometric period contemporary with the iron age at the beginning of the eleventh century, and continuing through the tenth to about 900 B. C., when the geometric style begins. This calculation is made on the basis of the last known Mycenaean date in Athens, which the authors give as 1375-1350 B. C. The transition from the late proto-geometric to the early geometric style is completed in Athens, and all over Greece, in the two decades after 950 B. C. They derive this last date on the basis of the same Thessalian sherds from Palestine, which in their opinion are either late proto-geometric or already early geometric in style, and comparable to a similar vase from the Kerameikos, *op. cit.*, p. 105, pl. 33.

<sup>31</sup> Kahane, *loc. cit.*, p. 473, assigns the pyxis in Buschor, *Die Plastik*

little less developed than *Br. Div. E I no. 1*, that known as *Olympia no. 607*, which we have dated about 750-725 B. C. *TC Div. C II no. 5* can be placed in the quarter century before, 775-750 B. C., coinciding in part with the date assigned it by Kahane.<sup>32</sup> *Group I* of *TC Div. C* is less developed than *Group II*, and may thus be placed in the preceding quarter century, 800-775 B. C., or perhaps even as far back as a little before 800 B. C. It is therefore contemporary with the earlier plastic horses from pyxides covers of the severe geometric phase when this motif first appears.<sup>33</sup>

Going over to the upper limit, 925 B. C., and working toward the lower, it seems advisable to assign a space of at least fifty years or so to the first two stages of the bronze technique, the "cut-outs" and the bending and hammering. We can thus assign them to the period 925-875 B. C. The remaining gap of about half a century to the end of the last quarter, 825-800 B. C., when *TC Div. C I* is dated, thus may plausibly be bridged. We may then assign *Br. Div. A* a half century, for it is a more rudimentary type and stands at the beginning of the series, in contrast to the more developed types later which are assigned only a quarter of a century. The assumption is that the development moved more slowly in the beginning than in the later phases. Such an assumption is permissible on the analogy of the nature of the development of Greek art in later periods, especially in the sixth and fifth centuries where the development moved with increasing acceleration. Thus we can assign *Br. Div. A* the period 875-825 B. C. *Br. Div. B* is more developed. It must be con-

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*der Griechen*, fig. on p. 6, a date at the turn from the ninth to eighth century, believing it is of transitional style, from late severe, to early ripe. However, it is less developed than our *TC Div. C II no. 5*, which he places in the early ripe geometric phase, dated by Kahane 800-775 B. C. (*ibid.*, p. 482).

<sup>32</sup> See footnote 31 above.

<sup>33</sup> Kahane, *loc. cit.*, p. 473, believes that the use of horses on pyxides covers actually begins in the severe geometric phase and continues into the ripe, and even later phases.

sidered as starting about 850 B. C., and continuing in vogue to 775 B. C. and later.

At Perachora some horses of *Br. Div. B* type were unearthed in a deposit which began to collect shortly before 750 B. C., to judge from some Protocorinthian ware found there.<sup>34</sup> Another bronze horse, of *Br. Div. C II* type, was also found in the same deposit.<sup>35</sup> *Br. Div. B* and *C* are contemporaneous in part. Thus a probable date of 750 B. C. for the *terminus ante quem* of *Br. Div. C II* is offered, and a slightly earlier date for end of the vogue of *Br. Div. B*.

*TC Div. B* is probably contemporary with the earliest examples of *Br. Div. B*, for the terra cotta technique passes out of vogue while the bronze continues. *TC Div. A*, however, is more developed than *Br. Div. A*, and so may have begun about the same time as *Br. Div. B*, namely 850 B. C. *TC Div. B I* and *II* are not found at Olympia at all, and may perhaps be a local imitation in terra cotta of the widespread bronze type of *Br. Div. B*. Therefore, *TC Div. B I* and *II* may be approximately dated 850-825 B. C., that is, within the approximate limits of one generation. *TC Div. B III* is from Olympia, and is equal in development with *Br. Div. C I*; hence the two may be contemporary, and dated from about 825 B. C. to 800 B. C. at the latest. *Br. Div. C II* can therefore be dated 800-775 B. C. *TC Div. C II* bridges the remaining quarter of a century to *Br. Div. E I*. It is only slightly less developed than the latter, and must therefore be dated 775-750 B. C. (see chronological chart above).

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<sup>34</sup> Payne, *Perachora I*, p. 125, pl. 37, no. 4, 7.

<sup>35</sup> *Ibid.*, p. 126, pl. 37, no. 8.



### CHAPTER III

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#### THE ORIENTALISING AND EARLY ARCHAIC PERIODS, 700-550 B. C.\*

Owing to the dearth of monumental sculpture during this period, as in the preceding, and in the absence of buildings of certain date decorated with sculptures of the horse, it is again necessary to turn to a minor art, vase painting, for evidences of the development. Fortunately, a more or less certain chronology for Protocorinthian and Corinthian wares, widely accepted among scholars, has been determined.<sup>1</sup> The Protocorinthian and Corinthian vases provide us with a series of examples which bridge the gap in the development from the geometric style to that of the sixth century, when monumental sculpture appears more frequently in Greek art.

An aryballos from Thebes (Fig. 17, Example I), now in the Louvre, although not the very earliest with horses as part of the decoration, is already free of most of the geometric conventions. It displays strong evidence of oriental influence, apart from the many orientalising details of the horses in particular.<sup>2</sup> Both Johansen and Payne assign an early seventh century date to this vase, namely 700-675 B. C.<sup>3</sup> Horses similar to these on vases of a later date have been rightly judged to be reminiscent of a type depicted on Assyrian reliefs.<sup>4</sup>

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\* For analyses of the examples discussed below see Appendix II.

<sup>1</sup> Johansen, *Les Vases Sicyoniens*, Paris 1923; Payne, *Protokorinthische Vasenmalerei*, Berlin 1933; for the Corinthian with a few chapters of Protocorinthian, cf. Payne, *Necrocorinthia*, Oxford 1931.

<sup>2</sup> Johansen, *op. cit.*, pl. XXII 1, pp. 92, 139-143, 151; Payne, *Proto.*, p. 13, pl. 10, no. 1; Couve, *RA XXXII*, 1898, pp. 213 ff., fig. 2.

<sup>3</sup> Johansen, *op. cit.*, p. 185, "Époque des Aryballes ovoïdes. Classe A"; Payne, *Proto.*, p. 13, first black-figured style, first quarter of the seventh century.

<sup>4</sup> Payne, *Necro.*, p. 71, refers to the work of von Lieres, a doctoral

Another Protocorinthian vase of contemporary date is an aryballos in Berlin.<sup>5</sup> The horses show similar discrepancies in proportion and anatomy. The gait is exactly like that on the vase above. The two vases, besides being alike stylistically, are sufficiently alike in the rendering of the horses to permit the conclusion that both are from the hand of the same painter. The outline of the shoulder is drawn in the same fashion. The head with its protruding forehead, the full mane, the highly ascending croup, in this case almost half a head above the lowest part of the back, the rendering of the fetlock and the pasterns by two parallel lines across the width of the member, the proportions of the animal, and the gait with the same curious over-advanced hind left foot, all of these details are not fortuitous. Both vases, thus, must be from the hand of the same painter.

By the next quarter-century, 675-650 B. C., very definite advances in the rendering of the horse are apparent. The vase next analysed is placed by Johansen and Payne within this quarter-century on the basis of arguments apart from those having to do with the horse. This vase, the Macmillan Aryballos (Fig. 18, Example II), found in Thebes, now in

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dissertation submitted at the University of Bonn, *Beiträge zur Geschichte der Pferdedarstellung in der altgriechischen Vasenmalerei*, pp. 14 and 28, note 6. She demonstrates this fact by means of a stylistic comparison. Anatomically the comparison is not possible. The detail which makes the two look alike is the pose, namely, the flying gallop, in which the horse floats through the air with anterior and posterior members extended. Otherwise they are quite different, for the Greek is primitive, while the Assyrian is already at the zenith of development.

According to Payne, *op. cit.*, p. 71 note 1, most of von Lieres' conclusions are untenable, for they are based on certain vases which she judged early, but which are actually late.

Furthermore, I find that, aside from this particular fact, she rarely makes anatomical or proportional analyses, but comes to her conclusions and chronological deductions on a comparison of a few general features, such as subject matter, pose, and general outline.

<sup>5</sup> Johansen, *op. cit.*, pp. 92, 112, 129, 136-140, 148-151, pl. XXIII no. 1; Payne, *Proto.*, pl. 10 no. 6.

the British Museum, shows this advanced technique in the rendering of the horse more clearly than most vases of contemporary date.<sup>6</sup> Payne dates it at the end of the second quarter of the seventh century.<sup>7</sup> He agrees with Johansen who also places it in the same second quarter-century.<sup>8</sup>

The horses of the Macmillan Aryballos are more developed because the artist attempts to render the brow by means of a line, that is, to draw something comparable to the supra-orbit. Another advance appears in the rendering of the gait, which, although incorrect, is more difficult than a gait where all four feet are on the ground. The proportions, although not far different from those of *Example I*, Aryballos from Thebes (Fig. 17), seem more logical, because the various parts are better attached and integrated one to the other. The excessive length of the trunk is due to the artist's desire to fill the circumference of the frieze with as few horses as possible. Definite anatomical advances are evident in the better shape of the head, which no longer has a protruding forehead, in the shorter cannons, and in their better relation to the leg and forearm.

Within a short time after the middle of the seventh century a remarkable advance occurs. This is best seen on the famous Chigi Vase (Fig. 19, *Example III*), now in the Villa Giulia in Rome. According to Payne it can be dated no later than 635 B. C.<sup>9</sup> The advance is perhaps the direct

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<sup>6</sup> Johansen, *op. cit.*, pp. 86, 95, 98, 112, 120, 126, 131, 136, 156, pl. XXXII; Payne, *Necro.*, pp. 11, 68 note 1, 88 note 2, 94-95, 172, 225, pl. I no. 7; Payne, *Proto.*, pl. 22 no. 1.

<sup>7</sup> *Necro.*, p. 11, the middle of the seventh century; *Proto.*, p. 20, Developed Polychrome Style, contemporary with the end of the Second Blackfigured Style, about 650 B. C.

<sup>8</sup> *Vases Sicyoniens*, chronological table, p. 185. "Époque des aryballes ovoïdes. Classe B."

<sup>9</sup> Payne, *Proto.*, pls. 27, 28, 29; Payne, *Necro.*, no. 39, pp. 272, 18, 20, 28, 38, 41-42, 54, 71, 80, 94 ff., 116 note 9, 132, 182 note 1, fig. 17; Johansen, *op. cit.*, pp. 86, 103 ff., 112 ff., 125, 129-131, 135 ff., pl. XXXIX, XL; Kunze, *Kretische Bronzereliefs*, pp. 163, 164, 204,

result of the greater use of interior drawing. Certain muscles, the triceps, the semi-tendinosus, the semi-membranosus, as well as the muscularity of the forearm, are rendered by means of lines.

The horses on a Delo-Melian vase (Fig. 20, Example IV) of approximately contemporary or possibly slightly later date are quite different in character. They seem to be even further removed from reality than the examples analysed above.<sup>10</sup> Curiously enough, the horses on this vase and on other Delo-Melian vases are startlingly like those on the frieze of the temple at Prinias (Fig. 21, Example V). According to Pfuhl,<sup>11</sup> this particular style of vase painting starts in the beginning of the seventh century, and continues to about the beginning of the sixth, even after the black-figured style has appeared in such vases as the Nessos vase, dated 625-600 B. C. The example selected for analysis here is contemporary with the earlier of the two discussed by Pfuhl,<sup>12</sup> both falling in

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207; Rumpf, "Festschrift für Poland," p. 282 in *PW*, 1932; Pfuhl, *Malerei und Zeichnung der Griechen*, §§ 99 ff., fig. 59; Alinari photographs 41128-30.

<sup>10</sup> Conze, *Melische Tongefässe*, pls. I, II; Pfuhl, *Masterpieces of Greek Drawing and Painting*, p. 35, fig. 3; Rayet and Collignon, *Céramique Grecque*, p. 51, pl. II; Pfuhl, *Malerei*, §§ 129 ff., fig. 105; *AZ* XII, 1854, pl. 61; *JdI* II, 1887, pp. 211 ff., pl. 12.

For similar vases with horses almost exactly the same, see Conze, *op. cit.*, pls. IV, V; Pfuhl, *Masterpieces*, fig. 54; Pfuhl, *Malerei*, figs. 108, 110; Buschor, *Greek Vase Painting*, p. 54, fig. 52.

For a discussion of the date of the Delo-Melian style see Pfuhl, *Malerei*, §§ 129 ff. See also for dating and for many other examples *Exploration archéologique de Délos*, vol. XVII, 1935; Dugas, *Les vases orientalisants de style non Mélien*, no. 15, class Ba, p. 14, pl. LXIX; no. 2, class Ba, p. 10, pl. II; no. 5, class Ba, p. 11, pl. III; no. 8, class Ba, p. 13, pl. V.

Cf. Poulsen and Dugas, "Vases Archaiques de Délos," *BCH* XXXV, 1911, pp. 35, 422-501; Dugas, "Un trésor céramique à Délos," *Rev. de l'art anc. et mod.*, XXXI, pp. 339-352; Hopkinson and Baker-Penoyre, "New Evidence on the Melian Amphorae," *JHS* XXII, 1902, pp. 46-75, pl. V.

<sup>11</sup> *Malerei*, §§ 129 ff.

<sup>12</sup> *Masterpieces*, p. 13, fig. 3; and *Malerei*, §§ 129, fig. 108.

the second half of the seventh century. He claims the later vase<sup>13</sup> belongs perhaps to the turn of the century. The one selected for analysis can be assigned a date just before or just after the beginning of the fourth quarter of the seventh century, 635-620 B. C. This date, and for that matter, the dating of Delo-Melian vases in general, is not nearly so certain as the dates derived for the Protocorinthian and Corinthian wares.

The interesting fact about the horses on this vase, and on other Delo-Melian vases noted above, is the apparent similarity between them and the horses from the frieze of the temple at Prinias<sup>14</sup> (Fig. 21, Example V). The date of the building is not certain. The sculpture, however, may date from the seventh century.<sup>15</sup> This date depends on that of the building which must remain rather indefinite. It cannot, however, be after the beginning of the sixth century.<sup>16</sup> This leaves about a century for the limits within which the temple and the frieze may fall. On stylistic grounds the frieze may be from the last quarter of the seventh century.<sup>17</sup> Nevertheless, if it is valid to maintain that any two objects are contemporary when they have many features in common, it is safe to say that the Prinias frieze and the Delo-Melian vase analysed above may possibly be contemporary.

Two vases bring to a close the period under discussion. They are Corinthian, sixth century in date, which continue the development predicated by the older Protocorinthian style discussed above. One is the Timonidas Vase (Fig. 22,

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<sup>13</sup> *Masterpieces*, fig. 4, and *Malerci*, fig. 110.

<sup>14</sup> For photographs and a discussion of the sculpture and architecture, see Pernier, *Bollettino d'Arte*, 1907, pp. 28 ff., pl. II, and 1908, pp. 458 ff., fig. 12; *Ann*, 1914, pp. 21 ff.; *AJA XXXVIII*, 1934, pp. 171 ff.; Richter, *Sculpture and Sculptors of the Greeks*, p. 84, fig. 347; Richter, *Animals*, p. 15, fig. 50; Weickert, *Typen der archaischen Architektur*, p. 59.

<sup>15</sup> According to Pernier, *AJA XXXVIII*, 1934, pp. 171 ff.

<sup>16</sup> Pernier, *Ann*, 1914, pp. 75 ff.

<sup>17</sup> Richter, *Animals*, p. 15.

Example VI) of the middle Corinthian style which Payne dates c. 580 B. C., the other the Amphiaraos Krater (Fig. 23, Example VII) of late Corinthian style, from Caere, now in Berlin. In Payne's chronology for Corinthian ware<sup>18</sup> it falls into the second quarter of the sixth century, or perhaps 550 B. C.

In general the proportions of the horses on the Timonidas Vase are better than on any of the examples preceding. The gait seems more sophisticated, for, although all four feet are on the ground, they are disposed in criss-cross positions simulating a trot. The Amphiaraos Krater is even more developed. Noteworthy is the fact that the trunk is in better proportion than heretofore. The gait shows a definite advance, for the feet are placed on and off the ground in the positions of a walk. This example helps provide an intermediate step, or transition, to the developed archaic black-figured style in Athens, as, for example, the François Vase (Fig. 24), now in Florence, and some vases by Exekias.<sup>19</sup>

#### SUMMARY

The head is usually small, and only a few of its distinguishing features are recognized. Those which do appear are not always correctly rendered. Neither the ear nor the eye is ever correctly shown, or in correct position. The differ-

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<sup>18</sup> Timonidas Vase: Payne, *Necro.*, pl. 34 no. 5, pp. 104, 105 note 2, 135, for inscription p. 163 note 14, for date p. 314 no. 1072; Pfuhl, *Malerei*, §§ 211 ff., fig. 174; *AM* XXX, 1905, p. 199, pl. 8A; Buschor, *Vase Painting*, pp. 45 ff., fig. 44, pl. XXXI; Collignon and Couve, *Catalogue des Vases Peints du Musée National d'Athènes*, no. 620; Hoppin, *Handbook of Greek Black-Figured Vases*, no. 12.

Amphiaraos Krater: Payne, *Necro.*, pp. 329 no. 1471, 98 note 2, 107-108, 111, 139 ff., 238; Buschor, *Vase Painting*, pp. 67, 71-73, 143-144, fig. 67; Pfuhl, *Masterpieces*, p. 21, fig. 14; *MontInst* X, pls. IV, V; *FR* III, pl. 122; Robert, *Hermeneutik*, p. 207, fig. 161; Pfuhl, *Malerei*, §§ 211 ff., fig. 179.

<sup>19</sup> See the following chapter for the period between the François Vase and about 480 B. C.

entiation between lips and chin is not immediately recognized. This feature appears in *Example II* (Fig. 18) for the first time. Of all the bony structure of the head, the mandible, that is, the inferior maxilla, is the only one indicated. The supraorbit is not understood, but is summarily sketched in by means of a brow line over the eye. In the earliest examples the forehead protrudes quite unnaturally.

The trunk is long and narrow with the top of the shoulder indicated, but not the point of the haunch. In the later examples the trunk tends to become somewhat shorter, but is in no instance correct. As in the geometric ware, the cannon is always too long in the earliest examples. In the later examples, however, it diminishes in size. The various joints are at best only summarily shown. From the very earliest the outline of the extremity of the member, including fetlock, footlock, pasterns, and foot, is reproduced rationally.

The animals in every case, even in the Delo-Melian examples, are longer than they are high. The earliest exaggerate this error, and the later minimize it. The proportions of the various parts to each other are difficult to predict. They vary because, as the drawing is made, one original error necessitates many compensating errors. There is, however, an obvious refining of proportions in the later examples as more and more individual elements are rendered correctly in size and mass.

In no case is the gait naturalistically shown. The flying gallop does not appear immediately, and on the whole quite infrequently, especially in the Protocorinthian ware. But this is not the case with the later Corinthian, where this gait becomes quite common (Fig. 23). Still, no matter how the feet are disposed, they are in all cases incorrectly placed on the ground. Furthermore, excluding the flying gallop, only in the case of the *Amphiaros Krater* are the feet shown off the ground and an attempt made to render the members in the varying configurations of a stride.



## CHAPTER IV

### THE RIPE ARCHAIC PERIOD \*

560-480 B. C.

#### 1. THE ATHENIAN BLACK-FIGURED STYLE—KLITIAS AND EXEKIAS, 560-540 B. C.

The François Vase (Fig. 24, Example I), from about 560 B. C., overlaps the date of the last example in the chapter immediately above, the Amphiaraios Krater. The latter is dated in the second quarter of the sixth century, perhaps 550 B. C. This overlapping is desirable because of the change from Corinthian to Athenian ware.

The François Vase, painted by Klitias, now in the Museo Archeologico in Florence, is dated 560 B. C.<sup>1</sup> In spite of the fact that the medium is a minor one, an analysis of the horses on this vase, as well as of those on an amphora by Exekias, about two decades later,<sup>2</sup> shows them to be part of the development leading to the marble horses on the frieze of the treasury of the Siphnians at Delphi. Apart from the æsthetic considerations, the advance over the Amphiaraios Krater (Fig. 23) can be reduced to a few simple elements resulting from a greater use of interior drawing. Thus, the muscularity of the forearm and leg, the inclusion of the

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\* For analyses of the examples discussed below see Appendix II.

<sup>1</sup> Milani, *Il Museo Archeologico di Firenze*, no. 4209, pp. 148-149; *FR*, pp. 1-14, 55-62; Pfuhl, *Malerei*, § 259, dates it in the second quarter of the sixth century, see also §§ 258, 259, 260 for an extensive bibliography, and figs. 215-217; Buschor, *Greek Vase Painting*, p. 99, dates it in the sixties of the sixth century, also pp. 71, 95, 96, 97-99, 100, 101, 103, 104, 108, figs. 89, 90; Pfuhl, *Masterpieces*, pp. 25, 27, fig. 19; Rayet and Collignon, *Céramique Grecque*, figs. 44-49; Hoppin, *Black-Figured Vases*, pp. 148 ff., and p. 150 for an extensive bibliography.

<sup>2</sup> See *Example II* below, for an analysis of Exekias Amphora.



great oblique muscle of the abdomen, the three ribs, the masses of muscle on the thigh and buttock, the fortuitous rendering of the triceps, and the protuberance of the eye comprise the sum of details which mark the horses on this vase as more advanced than those on the Amphiaraios Krater.

An amphora by Exekias (Example II), now in the Vatican in Rome, some two decades later, is distinguished not so much by the inclusion of any new anatomical details, as by a refinement of the rendering of the anatomy and of the proportions.<sup>3</sup>

There are a number of vases by the same painter remarkably like the foregoing. The horses on another amphora from Orvieto, now in Berlin, are so like those on the Vatican amphora that, except for the slightly different postures, they could almost be interchanged.<sup>4</sup> The same is true of an amphora from Vulci, now in the Louvre, where the horses are rendered by means of the very same formulae.<sup>5</sup> The horses on a neck amphora by the same painter, in the Metropolitan Museum, are quite similar to those on the vases above.<sup>6</sup> All these horses are painted by means of formulae of conventions which persist even in later times. The conventional way of rendering the outline of the shoulder blade long antedates Exekias. The

<sup>3</sup> Helbig, Reisch, and Amelung, *Führer durch die öffentlichen Sammlungen klassischer Altertümer in Rom*, I<sup>3</sup>, p. 304, no. 480; Rayet and Collignon, *Céramique Grecque*, p. 128, fig. 58; *FR* III, pp. 65-72, figs. 30, 34, pls. 131-132; *JdI* III, 1888, p. 62; Hoppin, *Black-Figured Vases*, Exekias no. 9, pp. 106, 107; Pfuhl, *Malerei*, § 272, figs. 229, 230, dates it in the early part of the third quarter of the sixth century; Technau, *Exekias*, pl. 20. Other horses on vases by the same painter which are alike are discussed below, see footnotes 4, 5, and 6.

<sup>4</sup> Technau, *Exekias*, nos. 1, 2, pl. 2; Hoppin, *Black-Figured Vases*, Exekias no. 2, pp. 92, 93; Pfuhl, *Malerei*, §§ 279 ff., fig. 228.

<sup>5</sup> *WV*, 1888, pl. 5, a, b, c; Rayet and Collignon, *Céramique Grecque*, p. 117, fig. 55; Hoppin, *Black-Figured Vases*, Exekias, no. 6, pp. 100, 101.

<sup>6</sup> Richter, *Shapes and Names of Athenian Vases*, fig. 15; *AJA*, XXVI, 1922, pp. 61, 63; Tillyard, *Hope Vases*, pl. 3; Technau, *Exekias*, no. 17, pl. 4.

muscularity of the buttock, the outline of the ribs, the great oblique muscle of the abdomen, the muscularity of the forearm and leg, the bony structure of the carpus and the hock, the character of the cannon, fetlock, pasterns, and foot, are all shown by means of interior drawing. The drawing eventually loses its significance, and instead of becoming more and more realistic as in three-dimensional media, it degenerates into almost pure decoration.

## 2. SHORT SURVEY OF BLACK AND RED-FIGURED VASE PAINTING, 540-480 B. C., AS TRANSITIONAL TO PLASTIC MEDIA

To justify the necessary departure from the extended use of vases to determine a system of dating horses in Greek art, some of the more important examples of the vase painter's art must be examined briefly at this point. No matter how accurately dated some of these vases may be, it is dangerous to rely wholly on them to supply well marked steps in the chronology of a major medium, that is, three-dimensional sculpture. Even at best, vases are the work of craftsmen, excellent indeed, yet not of such important artists as would be commissioned to execute the Siphnian treasury frieze (Figs. 25-27), or the Akropolis horses Nos. 697 and 700 (Figs. 28-30). The more important reason is, however, that even though the vase painter's art follows well defined lines of development to a final culmination in the sixth century, the rendering of the horse, on the other hand, is reduced to rigid formulae which persist in the fifth century and later. Although the early vases offer concrete evidence from which the development of the representation of the horse in Greek art may be deduced, especially for the period between 700-550 B. C. and a little later, this is not the case thereafter. As is to be expected in a two-dimensional line drawing technique, except for the more realistic rendering of the gait, the older conventions persist.

Such formulae of representation seen on the vases by Exekias above, appear also on the vases of another black-figure

painter, Sakonides, *floruit* 550 B. C. to approximately 520 B. C., especially on a krater in Athens, and on a kylix in Taranto.<sup>7</sup> To some extent he was a contemporary of Exekias.<sup>8</sup> Two other vases mark him as an adventurous innovator. He attempted to draw horses in full front, a position similar to that of the horse on the well known metope from Temple C at Selinus. The horses on both vases are similar and equally unsuccessful. One is a neck amphora in Tarquinia,<sup>9</sup> the other a krater from Gela, now in the Fogg Museum, Cambridge.<sup>10</sup>

Epiktetos worked both in the black-figured and red-figured techniques. A transitional example in the bilingual manner can be dated about 530-525 B. C.<sup>11</sup> He employed similar conventions in both techniques. The kylix in bilingual technique above, now in the British Museum, offers unmistakable evidence of this fact.<sup>12</sup> The horse is actually more advanced than those of Sakonides or Exekias, and seems to presage the type exemplified on the frieze of the Siphnian treasury (Figs. 25-27). The point of the shoulder is too strongly marked and protrudes unnaturally. The buttock is excessively wide, the head long and narrow. The stifle fold continues along the inferior limit of the abdomen, finally merging with

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<sup>7</sup> For the Krater: Rumpf, *Sakonides*, no. 97, pl. 8 a; Nat. Mus., Athens, no. 11 706. For the Kylix: Hoppin, *Black-Figured Vases*, Sakonides, no. 4, p. 323; NS, 1903, pp. 34-37, figs. 1-4.

<sup>8</sup> Rumpf, *Sakonides*, p. 21.

<sup>9</sup> *Ibid.* no. 66, p. 15, pl. 9 c, d.

<sup>10</sup> *Ibid.* no. 94, pp. 13 ff., pl. 12 c; Thieme-Becker, *Künstlerlexikon* XXIII, p. 491, no. 9; BCH LV, 1931, pp. 234 ff., figs. 3, 4, 6.

For some other vases with horses painted in full front see, Rumpf, *Chalkidische Vasen*, p. 3, no. 3, pl. IX; p. 17, no. 22, pl. XLV; p. 17, no. 24, pl. XLVII; p. 18, no. 31, pl. LXII; p. 27, no. 113, pl. CXXVI.

<sup>11</sup> Kraiker, *JdI* XLIV, 1929, pp. 151-158; Dorothy Hill, *Journal of the Walters Art Gallery*, Baltimore 1938, p. 25 ff., fig. 8.

<sup>12</sup> Brit. Mus. no. E 3 (814); JHS XXIX, 1909, pp. 109, 110, no. 8, pl. 12; Hoppin, *Handbook of Attic Red-Figured Vases* I, Epiktetos, no. 7, pp. 308, 309; Swindler, *Ancient Painting*, fig. 277; Dorothy Hill, *loc. cit.*, fig. 8; Beazley, *Attic Red-Figure Vase-Painters*, p. 45, no. 3, Epiktetos, no. 2.

the outline. The neck muscles are shown by means of incised lines. There is no interior drawing whatever in the members.

The very same type of horse, drawn in a similar fashion, appears on a red-figured plate now in the British Museum.<sup>13</sup> It is of the same proportions, and appears in a position similar to that of the horse on the bilingual vase. This is the vase which Payne believed was directly influenced by the Akropolis Museum horse No. 700 (Figs. 28-29).<sup>14</sup> The old conventions persist for the rendering of the shoulder, the great oblique of the abdomen, the muscles of the neck, and the triceps. The horses on the two vases are alike even as regards such small details as the parting of the hair of the mane where the halter is fitted, and the absence of interior drawing in the members. The proportions of the horse on the red-figured plate are not only the same as those on the bilingual vase, but are also similar to those on the vase by Exekias analysed as *Example II* (cf. Appendix II).

A pelike from Caere, now in Berlin, by the same painter, shows a similar type of horse.<sup>15</sup> The technique continues practically unchanged in the next decade, 510-500 B. C., as revealed on a kylix from the hand of a minor painter, Painter of Berlin 2268, now in the Metropolitan Museum.<sup>16</sup> In spite of a minimum of interior drawing, the conventions, such as the rendering of the shoulder, the muscles of the neck, and

<sup>13</sup> Brit. Mus. no. E 136 (938); Hoppin, *Red-Figured Vases I*, Epiktetos, no. 12, p. 315; Pfuhl, *Malerei*, §§ 447 ff., fig. 328; Dorothy Hill, *loc. cit.*, fig. 7; Beazley, *Attic Red-Figure Vase-Painters*, p. 50, no. 78.

<sup>14</sup> Payne, *Archaic Marble Sculpture from the Acropolis*, p. 52, dates it c. 520 B. C. on a comparison with this plate by Epiktetos.

<sup>15</sup> *JdI* III, 1888, p. 146; *JHS* XXX, 1910, p. 61, no. 266; Hoppin, *Red-Figured Vases I*, Epiktetos, no. 3, pp. 302, 303; Pfuhl, *Malerei*, §§ 447 ff., fig. 322; Beazley, *Attic Red-Figure Vase-Painters*, p. 123, no. 25.

<sup>16</sup> Richter and Hall, *Red-Figured Athenian Vases in the Metropolitan Museum of Art*, p. 21, no. 6, pl. 5, 179; Richter, *Shapes and Names*, fig. 163; Beazley, *Attische Vasenmaler*, p. 46, no. 5; *Attic Red-Figure Vase-Painters*, p. 114, no. 15.

the break in the mane because of the halter, nevertheless persist. A slight innovation appears in the breaking of the croup line, which thus shows more clearly the configuration of the loins and the protuberance of the point of the haunch. The proportions are scarcely different from those on the vases of Epiktetos. The manner of doing the supraorbit is actually the same as on the Exekias amphora, *Example II*, while the neck muscles, as is the case with some of the vases of Epiktetos, are drawn in a way reminiscent of the configuration of those muscles on the Akropolis Museum horses Nos. 697 and 700.<sup>17</sup>

The Kleophrades Painter, dated c. 500-480 B. C.,<sup>18</sup> renders the proportions of a horse on a krater from Etruria, now in the Louvre, somewhat differently.<sup>19</sup> The animal is short and stocky, considerably shorter than heretofore. In contrast to the long, narrow heads of the previous examples, the head is short and square. Yet, in spite of these differences of proportion, the shoulder, the triceps, and the great oblique of the abdomen are rendered exactly as on the two vases by Epiktetos. The croup line is broken as it was on the kylix by the Painter of Berlin 2268, and thus reveals the configuration of the loins and protuberance of the point of the haunch. The supraorbit is exactly like that as early as in the black-figured technique of Exekias, and more recently on the Berlin Painter's kylix.

Two kylikes by the Kleophrades Painter in the Akropolis Museum and in the British Museum display the same details, with the innovation that the horse's head is turned toward the

<sup>17</sup> See *Examples VI* and *VII* below (Figs. 28-30).

<sup>18</sup> Hoppin, *Red-Figured Vases II*, p. 136, places him in the middle of the Ripe Archaic period; Swindler, *Ancient Painting*, p. 191, dates his activity 500-490 B. C.; Beazley, *Der Kleophrades-Maler*, p. 11, believes his works extend from about 500-480 B. C., and after.

<sup>19</sup> *CVA Louvre*, III 1 c, pls. 12 no. 8; 13 nos. 2, 5, 8; 14 nos. 1, 6; 16 nos. 1-3. *JHS XXX*, p. 67, XXXVI, p. 125; Beazley, *Kleophrades-Maler*, p. 14, no. 34, pl. 26; *Attic Red-Figure Vase-Painters*, p. 124, no. 40.

spectator.<sup>20</sup> Otherwise the anatomical delineation is the same as on the vase by this artist discussed immediately above.

Euphronios, one of the finest red-figured painters and potters, who enjoyed a long creative life from about 510 B. C. perhaps to as late as 470-464 B. C.,<sup>21</sup> utilised set conventions, or formulae, for rendering the anatomy of the horse throughout.

On a kylix from Vulci, now in the British Museum, the Panaitios master, sometimes associated with Euphronios, uses the old conventions, but does so to better advantage, so that his horses look more naturalistic than the earlier ones.<sup>22</sup> The triceps are joined to some muscles anteriorly to form a scalloped pattern. The ribs are indicated by means of short lines much lower than where they would ordinarily appear on the surface. The stifle fold continues along the inferior limit of the abdomen. The great oblique muscle is thus rendered in the conventional fashion. Unlike Epiktetos or the Painter of Berlin 2268, he indicates the muscularity of the members by means of decorative interior drawing, but quite unnaturally. The proportions are practically the same as those of the horses by Epiktetos. A touch of greater realism is achieved by means of the better attachment of the head to the neck and the neck to the trunk.

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<sup>20</sup> Graef and Langlotz, *Die antiken Vasen von der Akropolis zu Athen* II, p. 30 f., no. 336, pls. 24, and 25, no. 1; Beazley, *Kleophrades-Maler*, p. 16, no. 79, pl. 32; *Attic Red-Figure Vase-Painters*, p. 128, no. 93.

<sup>21</sup> Hoppin, *Red-Figured Vases* I, pp. 376 ff., II, p. 493; Klein, *Euphronios*; Hartwig, *Meisterschalen*, pp. 95 ff., 444 ff., 683 ff.; *FR* III, pp. 177 ff.; Pfuhl, *Malerei*, §§ 480 ff.

<sup>22</sup> Kylix: Brit. Mus. E 44 (822); *WV* I, pl. 7; Radford, "Euphronios and his Colleagues," *JHS* XXXV, 1915, p. 210; *FR* I, pp. 111-113, pl. 23; Hoppin, *Red-Figured Vases* I, Euphronios, no. 6, pp. 388, 389; Pfuhl, §§ 485 ff., fig. 402; Beazley, *Attic Red-Figure Vase-Painters*, p. 214, no. 11.

Panaitios master's association with Euphronios: Beazley, *CVA* 27, pp. 30 ff., and *JHS* XXXVII, 1917, pp. 233 ff.; Pfuhl, *Malerei*, § 486.



A horse on a kylix, with *Leagros Kalos*, from Vulci, now in Munich,<sup>23</sup> and some others on another kylix, with *Erothemis Kalos*, from the workshop of Euphronios, by Onesimos, also from Vulci, and now in the Louvre,<sup>24</sup> are all executed in a similar manner to those on the Panaitios kylix above. They, too, are strongly reminiscent of a horse on a plate by Epiktetos in the British Museum, because of the minimum of interior drawing, and the composition of the horse within a circular field.<sup>25</sup>

A few vases by the Penthesilea Painter, who worked in the first few decades after the Persian War,<sup>26</sup> continue to display many of the older formulae of rendition, although they are from the transitional period of Greek art, on the very threshold of the Classical period. The drawing of the anatomy becomes, in some instances, pure decoration, as, for example, on a kylix in Hamburg.<sup>27</sup> The croup line curves down to outline the loins and accent the haunch. It then turns, and continues along the inferior limit of the abdomen, swinging upward again just behind the anterior member. The triceps begin as a downward curve where this line ends, and describe a semi-circle directly over the member. The painter has

<sup>23</sup> *JHS* XXXV, 1915, p. 111; *FR* I, pp. 98-100, pl. 22; Hoppin, *Red-Figured Vases* I, Euphronios, no. 7, pp. 390, 391; Beazley, *Attische Vasenmaler*, p. 61, no. 9; Pfuhl, *Malerei*, §§ 482, 483, fig. 391; Swindler, *Ancient Painting*, figs. 245, 290, 295; Beazley, *Attic Red-Figure Vase-Painters*, p. 17, no. 14.

<sup>24</sup> Louvre G 105; Hartwig, *Meisterschalen*, pl. 53; *FR* II, p. 134; *JHS* XXXV, 1915, p. 121; Hoppin, *Red-Figured Vases* I, Euphronios, no. 12, pp. 400, 401; Pfuhl, *Malerei*, §§ 480, 487, fig. 404; Beazley, *Attic Red-Figured Vases in American Museums*, p. 88, no. 1; *Attic Red-Figure Vase-Painters*, p. 219, no. 1.

<sup>25</sup> See footnote 13 above; Brit. Mus. no. E 136 (988).

<sup>26</sup> Diepolder, *Der Penthesilea-Maler*, p. 21, believes that his activity begins about 475 B. C.; Swindler, *AJA* XIX, 1915, pp. 398 ff., pls. 24 ff.; Pfuhl, *Malerei*, §§ 568 ff., dubs him *Pferdemeister*.

<sup>27</sup> Diepolder, *Penthesilea-Maler*, pp. 12, 15, pl. 10; *FR* II, pl. 56; Pfuhl, *Malerei*, §§ 568 ff., figs. 500, 503; Beazley, *Attic Red-Figure Vase-Painters*, p. 583, no. 4.

nevertheless enhanced his work with a touch of realism in the case of one horse stretching its head downward to graze.

On another kylix, now in the Louvre, the Pistoxenos Painter employs the same conventions.<sup>28</sup> Here, again, he reveals his knowledge of the habits of the horse. Because the horse is being bridled, it stands firmly on its forefeet, while the hind feet fidget about, outwardly displaying its discomfiture. Another kylix, in Berlin, 2282, gives strong evidence of the fact that the Pistoxenos Painter, had closely observed horses and their habits.<sup>29</sup>

On this vase, as in the case of the others, the artist does not improve his predecessors' methods of rendering the anatomy. Instead he resorts to the conventions established in early archaic times. The gait, however, is quite advanced and almost like a stopped-action photograph. The artist has caught the horse moving at a full gallop during the moment of complete suspension when all the members are pulled up under the body. Nevertheless, in spite of this sophistication, neither the proportions nor the anatomy are any more advanced than that known by either Epiktetos or Euphronios.

This brief survey of the work of the vase painter points to the necessity of seeking more satisfactory evidence from three-dimensional media, particularly monumental sculpture. Previously, when no monumental sculpture of certain date based on external evidence was available, the only alternative possible was to turn to the art of the vase painter. During the latter half of the sixth century the technique of rendering the horse hardened into set, two-dimensional formulae, which persisted even while monumental sculpture, and other three-dimensional media, were fast becoming realistic. It is therefore best to make use of three-dimensional media, monu-

<sup>28</sup> Diepolder, *Penthesilea-Maler*, pp. 11, 13, pl. 8; Pottier, *Vases Antiques du Louvre* III, p. 158; Beazley, *Attic Red-Figure Vase-Painters*, p. 575, no. 6.

<sup>29</sup> Diepolder, *Penthesilea-Maler*, pp. 11, 12, 21, pl. 2, 2; Beazley, *Attic Red-Figure Vase-Painters*, p. 574, no. 1 (Pistoxenos Painter). Diepolder no longer identifies the Penthesilea and Pistoxenos Painters.



mental sculptures especially, when examples dated on external evidence become available.<sup>30</sup>

### 3. THE FRIEZE OF THE TREASURY OF THE SIPHNIANS AT DELPHI (FIGS. 25-27, EXAMPLES III-V)

The horses on the frieze of the treasury of the Siphnians at Delphi are the first three-dimensional examples of major importance. The date of the building is more or less certainly known, namely shortly before 525 B. C. Both Herodotos, III 57, and Pausanias, X 2.2, tell of an oracle adverse to the Siphnians delivered at the time they were building their treasury at Delphi. The oracle was fulfilled soon afterward when the Samians attacked them in the year reckoned about 524 B. C.<sup>31</sup>

From the first publication, two hands have been recognized in the execution of the four sides.<sup>32</sup> The north and

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<sup>30</sup> Langlotz, *Zur Zeitbestimmung des strengtrofigurigen Vasenmalerei und der gleichzeitigen Plastik*, attempts to draw parallels between vase painting and sculpture. He collates well known vases with other well known sculptures, but does so largely on the basis of subject matter and composition, with little emphasis on the actual technique of rendering. It is to be naturally expected that a vase dated 520 B. C. will look like the Siphnian treasury frieze at Delphi, because both are from the same age. Such a comparison had been made by Payne in the case of a plate by Epiktetos which he believed was inspired by Akropolis Museum no. 700, cf. footnote 14 above. Nothing very definite can be derived about the technique of one medium from the other, simply because they are so remote from each other, even when they treat of the very same subject. The technique of drawing, even at best, because of its two-dimensional character, must necessarily be farther removed from nature than three-dimensional sculpture, which can, and often does, achieve almost a facsimile of nature itself.

<sup>31</sup> For good photographs, see Homolle, Picard, and La Coste-Messelière, *Fouilles de Delphes* IV, pls. VII-VIII, IX-X, XI-XII. For excellent photographs of details and of parts of the frieze, see Kennedy, *The Treasury of the Siphnians at Delphi*, all the plates.

<sup>32</sup> Homolle, *BCH* XVIII, 1894, pp. 190 ff., and *BCH* XIX, 1895, pp. 535 ff.; Furtwängler, *Berl. Phil. Woch.*, 1894, col. 1274 ff.;

east sides were supposedly done by one man, the other two sides by another. Or, as La Coste-Messelière would have it, by two crews, *equipages*, comprising more than one sculptor each.<sup>33</sup> The grouping together of the north with the east side, and the south with the west side is borne out conclusively by the peculiarities of the rendering of certain anatomical details of the horses (See Examples III-V).

Aside from any considerations of style, an analysis of the east side alone would prove conclusively that more than one sculptor worked the whole frieze. The arguments based on evidence quite apart from that offered here, those advanced by most investigators, are bolstered by an examination of the horses.

In certain respects the east side (Example V) stands apart; many details distinguish it from the south and west. Hence, it must be from a different hand. The distinctive elements in particular are: (1) The absence of the xiphoid vein; (2) The manner of rendering the eye; (3) The presence of a strongly marked zygomatic ridge; (4) The presence of the supraorbit; (5) The longer croup and the very large buttock; (6) The lack of play in the pasterns.

The south and west sides (Examples III and IV), although different from the east in some details, resemble each other in many others. They are: (1) The manner in which the eye is worked;<sup>34</sup> (2) The realistic play of the pasterns; (3) The presence of the triceps, rendered with the same errors on both sides; (4) The lack of the supraorbits; (5) The heavily accented brow bulging over the outside corner of the eye.

There are a few minor differences between these two sides

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*Fouilles de Delphes* IV-2, pp. 112 ff., 143 ff., 167 ff., pls. IX-XIII; Picard and La Coste-Messelière, *La Sculpture Grecque à Delphes*, p. 16 (same plates).

<sup>33</sup> *Au Musée de Delphes*, p. 413. He believes the horses of the south and west friezes are comparable to those seen on some Klazomenian sarcophagi, p. 419.

<sup>34</sup> Only one eye is clearly discernible on the south side.

which bolster La Coste-Messelière's contention that two crews or gangs, and not two individuals, worked the frieze. The prime differences lie in the rendering of the triceps and the xiphoid vein. In the case of one horse on the south side the xiphoid vein is left out entirely.<sup>35</sup> The winged horses do not show the xiphoid vein at all. This may be owing to the presence of the wings. The winged horses have doubled triceps, as do the horses on the south side. On another group from the south frieze, however, that badly preserved, the triceps are barely visible. This latter group has only one set of incised lines posteriorly to the anterior member, and none in front, as is the case with the two end horses on the south side.

4. AKROPOLIS MUSEUM HORSES, Nos. 697 and 700 (Figs. 28-30, EXAMPLES VI and VII), AND THE BRONZE HORSE IN THE METROPOLITAN MUSEUM (Fig. 31, EXAMPLE VIII), NEW YORK.

The famous Demarateion dekadrachm of Syracuse (Fig. 32, Example IX), dated 479-478 B. C., follows the Siphnian treasury chronologically as the next monument of certain date on which horses appear. This coin was struck in commemoration of Gelon's victory over Carthage at Himera about 480 B. C. To proceed at once to a discussion of this monument would leave a gap of about forty-five years at a time when advances, as we know from the history of sculpture in general, were following hard and fast one upon the other. Three well-known monuments, for which dates based on external evidence are unfortunately not available, are chosen for discussion in order to fill this gap. They can be placed here, however, with some measure of confidence. On the basis of anatomical and proportional details, they are easily arranged chronologically, and thereby provide the intermediate steps between 525 B. C. and 478 B. C. The monuments in question are the two well-known marble horses in the Akropolis Museum, Athens, Nos. 697 and 700 (Figs. 28-30, Exam-

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<sup>35</sup> *Fouilles de Delphes*, IV, pls. IX-X, the horse leaving the altar.

ples VI and VII), and the famous solid cast Bronze Horse (Fig. 31, Example VIII) in the Metropolitan Museum of Art, New York.<sup>36</sup>

Both Nos. 700 and 697 have been considered close stylistically, with No. 700 the older of the two. In his catalogue of the Akropolis Museum, Dickins noted some differences between them, differences which led him to place them at least a decade apart.<sup>37</sup> It is quite possible, however, for two or more figures of absolutely contemporary date to show many

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<sup>36</sup> No. 700: Dickins, *Catalogue of the Akropolis Museum* I, p. 267; Winter, *JdI* VIII, 1893, pp. 14 ff., fig. 13 a-b, 14 a-b; BrBr, pl. 459; Schrader, *Auswahl archaischer Marmorskulpturen im Akropolis-museum*, pp. 48-53, pl. 14; Payne, *Archaic Marble Sculpture from the Akropolis*, p. 52, pls. 137, 138, 139 no. 1; Richter, *Animals*, p. 16, fig. 59; Curtius, *Die antike Kunst*, p. 168, fig. 310; Caskey, *Catalogue of the Museum of Fine Arts*, p. 24; Schrader, *Die archaischen Marmorbildwerke der Akropolis*, pp. 229 ff., no. 314, pls. 140, 141, 149, 150.

No. 697: Dickins, *op. cit.*, pp. 262 ff.; Payne, *op. cit.*, p. 52, pls. 139 no. 2, 140; Schrader, *Auswahl*, pp. 50-53, figs. 54, 56, pl. 15; Schrader, *Die archaischen Marmorbildwerke*, pp. 240 ff., no. 320, pls. 147, 148, 149, 150; von Lücken, *AM* XLIV, 1919, p. 105; Shear, *Art Bulletin* X no. 3, pp. 12 ff.; Caskey, *op. cit.*, p. 24; Richter, *Animals*, p. 16, fig. 58; Richter, *Sculpture*, fig. 348; Buschor, *Die Skulpturen des Zeustempels zu Olympia*, p. 29.

*Bronze Horse*: *BMMA* XVIII, 1923, pp. 89 ff.; Richter, *Sculpture*, p. 85, figs. 349, 350; Richter, *Animals*, p. 16, figs. 62, 63; Richter, *Handbook of the Classical Collection MMA* (1930), p. 134, figs. 89-91; Reinach, *Répertoire de la Statuaire Grecque et Romaine* V, p. 438 no. 3; Diehl, *Zeitschrift für bildende Kunst* LXI, pp. 30 ff., gives three good illustrations and an excellent discussion of the movement; Bulle, *Antike Plastik—Walter Amelung zum sechzigsten Geburtstag*, pp. 42 ff.; *Master Bronzes* (Buffalo), no. 81, contains a complete bibliography; Richter, text to BrBr, pl. 726.

<sup>37</sup> Dickins, *Catalogue*, pp. 262 ff., 267 ff.; Winter, *JdI* VIII, 1893, pp. 140 ff.; Richter, *Animals*, pl. 16, dates No. 700 500-490 B. C., and No. 697 490-480 B. C.; Payne, *Archaic Marble Sculpture*, p. 52, dates No. 700 about 520 B. C., and No. 697 soon after, basing his dates on a comparison with a plate from the early period of Epiktetos. He believes Epiktetos may have been inspired by No. 700. *Of. footnote 14 above.*

differences, and even for one to be more anatomically advanced than the other. This was the case with the Siphnian frieze. More important than this negative reasoning, which would permit Nos. 700 and 697 to be contemporary, is the fact that these two monuments have many elements in common, because of which they must be placed at least within the same decade, and perhaps even closer (See Examples VI and VII).

The analyses (Examples VI and VII) point to very slight differences only between the two horses. No. 697 seems to be more highly finished than No. 700, yet it is less sophisticated in some very important details. For example, No. 700 has the earlier conventional xiphoid vein. This is lacking entirely on No. 697. Furthermore, the one extant member of No. 700 is very naturalistic. On the other hand, its head is not so good. In spite of the general excellence of the head of No. 697, the ear is not so well set as on No. 700. Owing to the fragmentary nature of No. 697 arguments from proportion must be advanced with some reserve. Nevertheless, from the few measurements available, it is evident that No. 700 is somewhat better integrated. The only conclusion possible is that the two horses are contemporary in date, or that they at least fall into the same decade. The differences between them are probably the result of their being from different hands, as in the case of the Siphnian frieze.

The question of date, unfortunately, can only be answered by means of stylistic criteria. Payne dates No. 700 about 520 B. C., and No. 697 soon after.<sup>38</sup> This date is too early when the horses are compared with those of the Siphnian frieze (Figs. 25-27), the date of which is not later than 525 B. C., and, allowing a reasonable time for the building period, perhaps no earlier than 530 B. C. Certain details of the Akropolis horses are reminiscent of the Siphnian: (1) The excessive horizontal over-all measurement, despite the well proportioned trunk; (2) The rendering of the xiphoid vein;

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<sup>38</sup> Payne, *Archaic Marble Sculpture*, p. 52.

and (3) The protruding humerus, that is, the exaggerated projection of the point to the shoulder. These similarities, however, are not sufficiently strong to place the Akropolis and the Siphnian horses within five years of each other. On the other hand, weak though these connections may be, they do not permit dating them as late as 500-490 B. C., the date assigned to No. 700, and that of 490-480 B. C. for No. 697.<sup>39</sup> The Akropolis horses are probably from the last decade of the sixth century, namely, 510-500 B. C. This date is plausible if we look ahead for a moment, and keep in mind the advances made by the time of the Syracusan dekadrachm of 479-478 B. C. (Fig. 32, Example IX). The forty-five year gap is thus partially filled.

The Bronze Horse (Fig. 31, Example VIII) in the Metropolitan Museum bridges the remaining years with some measure of certainty, owing to its unmistakable connections on the one hand with the Akropolis horses, and on the other with the Syracusan dekadrachm.<sup>40</sup> In many respects it is very much like the Akropolis horses (Figs. 28-30), and, except for a few retarded details, is somewhat advanced over them. The most important advance lies in the better integration of the parts. The subtle working of the scapulo-humeral articulation, and the outline of the top of the scapula seen on the surface, are sophistications absent in the Akropolis horses. The attachment of the posterior member to the trunk, which reveals the realistic hollowing of the flank, and the outline of the femur seen on the surface, mark definite advances over the Akropolis horses. The muscles of the neck are more naturalistically depicted, while the muscles of the breast are better understood than before. On the Akropolis horses these muscles were no more than bulging masses of flesh. The members of the Bronze Horse, however, are not so well worked, nor is the trunk in so good proportion.

The Bronze Horse, therefore, belongs unmistakably after

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<sup>39</sup> Richter, *Animals*, p. 16.

<sup>40</sup> For bibliography of the Bronze Horse see footnote 36.



the Akropolis horses. Before deciding how long after to place it, however, the horses on the Syracusan dekadrachm, the monument which forms the final limit of the period under discussion, must first be analysed.

5. DEMARATEION DEKADRACHM, SYRACUSE, 479-478. B. C.  
(FIG. 32, EXAMPLE IX)

Because of the nature of the medium, a silver coin, it is not safe to draw inferences as all-inclusive as one might in the case of monumental sculpture. Nevertheless, within certain limits, an examination of this very splendid coin proves most fruitful.<sup>43</sup>

This example definitely belongs at the end of the series comprising the two Akropolis horses (Figs. 28-30) and the Bronze Horse (Fig. 31). Despite the size, it is most significant that the members are nevertheless rendered with a great many details. Such excellence of workmanship is actually unprecedented in the monumental works with which this coin is grouped. The triceps are better understood than on the Bronze Horse; and, together with the knowledge of the changing shape of the carpus, mark a distinct advance over the three examples, where this subtlety is not yet understood. Other sophistications are the better handling of the stifle fold and the hollowing of the flank, in spite of the difficulty of working in such minute relief (Fig. 32, Example IX). This points to a profound manual skill and complete understanding of these elements on the part of the artist.

Keeping these marked advances in mind on the one hand, and the close connections between the Bronze and Akropolis Horses on the other, it is natural to conclude that there is a greater gap between the Demarateion horse and the Bronze, than between the latter and the Akropolis horses. It there-

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<sup>43</sup> Hill, *L'Art dans les Monnaies Grecques*, pl. XLIX; Richter, *Animals*, p. 16, fig. 61; Richter, *Sculpture*, fig. 160; Richter, text to *BrBr*, pl. 726, compares it to Bronze Horse; Head, *Historia Numorum* (1911), pp. 151 ff.; Rizzo, *L'Arte della Moneta nella Sicilia Greca*, pp. 27 ff., fig. 15.

fore seems possible to place the Bronze Horse in the next decade, or decade and a half at most, after the Akropolis horses, namely, 500-490 B. C., and not later than 485 B. C.

## 6. SUMMARY

The obvious advances noted in the early phases of this period are seen on the François Vase (Fig. 24, Example I). An attempt is made to render the great oblique of the abdomen, the triceps, the ribs as they appear on the surface, and finally the coronet as an integral part of the extremity of the member. Within the next two decades on the Exekias amphora, c. 540 B. C. (Example II), the devices of representation have definitely developed beyond those of the severe archaic style of the first half of the century. The supraorbit and the zygomatic ridge are recognized and already suggested. The presence of such a small detail as the xiphoid vein is noted; it is rendered, however, in a purely conventional fashion rather than naturalistically. The proportions, though not yet correct, seem to be reasonable, for the horse is well put together. But, as is characteristic of the early archaic period, the animal is more long than high. This feature persists even when the trunk is somewhat more correctly proportioned later.

About this time, the third quarter of the sixth century, it is apparent that very little more about the development of the horse in Greek art is to be gained from a further investigation of the vases. For the devices and methods of rendering have been reduced to hard, set, two-dimensional, line drawing formulae, which, although seemingly natural, are not nearly so realistic as are the examples in major media now available for study. A brief survey of vase painting extending well into the fifth century shows that little more can be derived from them to further our knowledge of the anatomy, and hence the development of the representation of the horse, largely because of the very nature of the medium.

By 525 B. C. the play of the pasterns is definitely recog-



nized, and the supraorbit understood. The latter is not very subtly rendered. The conventional manner of indicating the xiphoid vein persists, and even continues down to the time of No. 700 and No. 697 (Figs. 28-30, Examples VI and VII). About a decade and a half after the Siphnian treasury frieze (Figs. 25-27, Examples III-V), many sophistications appear on the Akropolis horses. The withers appear for the first time, and the working of the triceps is beginning to be understood. The various muscles of the breast and neck are attempted, but without too great success. An attempt is also made to show the bony parts of the carpus, the difference between the bones and ligaments of the cannon, and the variations in appearance of the elbow when the member is in action. The proportions of these marble horses are the best studied thus far, but they still persist in the archaic tradition, that is, they are long in general outline, rather than square. Finally, for the first time the gait is not altogether fortuitous. A partially successful attempt is made to give the animal the appearance of true motion.

The Bronze Horse (Fig. 31, Example VIII) in the Metropolitan Museum, which follows soon after the marble horses, continues this development. The sterno-maxillaris and the mastoido-humeralis muscles of the neck, and the muscles of the breast look natural. The flank is hollowed so as to reveal the femur of the thigh. The stifle fold disappears into the flank. The proportions are good, but the archaic oblong quality is still very much in evidence. The gait is exactly like that of the Akropolis horses.

The period closes in 479-478 B. C. with the Demarateion Dekadrachm from Syracuse (Fig. 32, Example IX). Small though this object is, the rendering of the horses is refined and in some respects actually advanced over the examples immediately preceding. The carpus is varied according to the position of the members, the triceps are boldly executed, the hollow of the flank is subtly done. The animal is quadrated for the first time, this in spite of the fact that some of the proportions are not exactly true.

## CHAPTER V

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### THE TRANSITIONAL AND CLASSICAL PERIODS \* 480-400 B. C.

With the pedimental sculptures of the Temple of Zeus at Olympia (Figs. 33-35) the development of the representation of the horse in Greek art reaches the point where the artist's knowledge of the anatomy of the horse is more or less complete. By the middle of the century, the time of the Parthenon frieze (Figs. 38-45), very few new elements had to be added to the existing devices and formulae of execution. The anatomy of the horse is now well understood by the more gifted sculptors, those that would be commissioned to work on such important monuments as the Zeus Temple at Olympia, the Parthenon, and the Temple of Apollo at Bassae (Figs. 47-48). Although the sum total of anatomical knowledge is more or less complete, further refinement by means of subtler and more sophisticated technique was still possible. Hence, any considerations of date must include not only *how much* anatomy the artist knows, but also *how well* he executes what he does know.

#### 1. THE TEMPLE OF ZEUS AT OLYMPIA (FIGS. 33-35, EXAMPLES I-II)

The Temple of Zeus at Olympia, dated about 468-457 B. C., is the next major monument, falling within less than two decades after the Syracusan dekadrachm (Fig. 32), the last example of the preceding chapter.<sup>1</sup> There were originally

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\* For analyses of the examples discussed below see Appendix II.

<sup>1</sup> Pausanias, V 10. 2, relates that the temple was built by the Eleans from the booty taken at the conquest of Pisa, about 470 B. C. He also tells, V 10. 4, that the Lacedaemonians placed a golden shield

eight horses, although not all are now extant. They stood in the east pediment, and formed the teams of Oinomaos and Pelops. Unfortunately, they are in a very bad state of preservation.<sup>2</sup> (See Examples I and II.)

Some of the formulae in vogue during the period immediately preceeding continue in use on the Olympia horses. An unmistakable archaic quality is the long, narrow head. Another is the extended dimension of the trunk. In the execution of the figure generally, the tendency is to keep the outline very clear, and to reduce the configuration of the whole to a few simple planes. This is especially true of the head, which is blocked out in a few surfaces with the transition from one plane to the next accented by a sharp ridge, a corner or a depression. Very few of the muscles of the head are modeled, and only such salient features as the zygomatic ridge and the mandible are evident. This method, however, does not prevail in the case of the body, where the technique is more subtle. The transition between the point of the haunch, the hollow of the flank, and the loose skin of the stifle fold are blended from one to the other without sharp lines of demarcation. Another trace of archaism, however, is the method of showing by means of sharp incisions the creases of the skin behind the ear, on the throat (Fig. 34), and behind the anterior member.

A step definitely forward is the realistic working and location of the nostrils. They are crescent-shaped, placed well above the extremity of the nose, and leave ample room for

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on the apex of the pediment after the Battle of Tanagra, 457 B. C. The temple must have been completed by that time.

Cf. Dörpfeld, *Olympia* II, *Die Baudenkmäler*, pp. 19 ff.; Dörpfeld, *Alt-Olympia* I, pp. 222 ff.; Gardiner, *Olympia*, pp. 234 ff.

<sup>2</sup> Treu, *Olympia* III, *Die Bildwerke in Stein und Thon*, Span of Pelops: figs. 72-77, pl. XII; Span of Oinomaos: p. 56, figs. 78-84, pl. XIII. Curtius, Adler, and Hirschfeld, *Die Ausgrabungen zu Olympia* II, pl. VIII; BrBr, pl. 449; Buschor and Hamann, *Die Skulpturen des Zeustempels zu Olympia*, Span of Pelops: pp. 19 ff., pl. VI, Span of Oinomaos: pls. XXI, XXII.

the upper lip. The mouth, too, is, for the first time, realistic. Even a minor detail, such as the bars, is included. The hollowing of the underside of the head between the jawbone and the inferior maxillae is realistically rendered. The supra-orbit is no longer merely a gouged hollow, but a well defined depression that blends into the surrounding surfaces (Fig. 34). Decorative whimsy must have overtaken the sculptor, however, when he carved the xiphoid vein in the form of an undulating cord flowing along the entire length of the abdomen as far as the inguinal region (Fig. 35). Nevertheless, he attains great realism in the execution of the skin and fine hairs on the thigh and buttock, and over the patella. It would be more correct to say that the texture here simulates fine skin and hair, and is quite different from the surface textures elsewhere.

## 2. THE PARTHENON (FIGS. 38-46, EXAMPLES III-XII)

If the Parthenon sculptures stand at the high water mark of Greek plastic art, then, by the same token, the many figures of horses decorating this important monument do likewise. Fortunately, the construction dates of this building are very definitely known.<sup>3</sup> It was begun in 447 B. C. and dedicated in 438 B. C., while the work of the sculptors continued until 432 B. C., just before the Peloponnesian War broke out. The exterior frieze of the cella, which contains a great many horses, was probably done between 442-438 B. C., and the pediments certainly between 438-432 B. C.<sup>4</sup>

Because the west side was in the best state of preservation when the casts of the frieze were taken a century ago, the analyses begin with the horses from that side.<sup>5</sup> This also is

<sup>3</sup> Anderson, Spiers, and Dinsmoor, *Architecture*, p. 117, and chronological table at end of text.

<sup>4</sup> Dinsmoor, *AJA* XXV, 1921, pp. 243-244; Richter, *Sculpture*, p. 42.

<sup>5</sup> The photographs studied and used here are exclusively from the definitive publication of the British Museum, where the greatest part of the frieze now is, A. H. Smith, *The Sculptures of the Parthenon*, London 1910. Roman numerals refer to the British Museum's

finer in execution. But more important for our purpose, the bodies of the various horses do not overlap as they do on the north and south sides, allowing, therefore, more accurate observations. The measurements given in the analyses in Appendix II below were taken from the casts in the Metropolitan Museum of Art in New York City. (See Examples III-VIII.)

The very first example to be analysed, *W II Fig 2* (my Fig. 38, Example III) shows distinct anatomical advances. Another horse on the same slab, *W II Fig. 3*, displays exactly the same features. The head, however, which is better preserved, shows a distinct advance over the Olympia horses in the rendering of the eye. The inside corner reveals the tear duct a little more organically, and, unlike the Olympia horse, on which it is rounded, the outside corner of the eye is pinched together at the meeting point of the upper and lower lids. The xiphoid vein, as on Example III, is lacking, and, in common with it, the atlas bone is very distinct. But the manes of the two horses are different. On this horse, *Fig. 3*, the mane is rendered in loose locks which break over the general outline (Fig. 38). The first horse's mane is done by means of a series of parallel grooves, some deeper than others, which break here and there along the general contour.

The manner of rendering the manes on the whole frieze, although varied from horse to horse, may be reduced to a few simple types which alternate irregularly with but minor differences around the whole frieze. Thus, for example, two types appear on *W II* of the west frieze, as indicated immediately above. Besides these two types, one or two others comprise

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numbering of the slabs, while the photographs, that is, the plates, are numbered with Arabic numerals. The figures, which are often referred to below by number, are those either riding the horse in question, or else nearest to it. The horses received no numbers in the publication mentioned above.

Cf. also Collignon and Boissonnas, *Le Parthénon*, pp. 5 ff., pls. 75-118, using the same slab numbers as the British Museum; Murray, *The Sculptures of the Parthenon*, London 1903.

the whole repertoire. They are repeated in a way as to add greatly to the lively feeling of continuous movement, which might have been somewhat thwarted were all the manes alike.<sup>6</sup>

The excessive length of the anterior member is constant throughout the frieze. The most probable reason for this universal discrepancy is the manner in which the trunk is designed. The thorax is not sufficiently deep from the withers to the xiphoid region. As a result, the curve of the inferior limit of the abdomen toward the inguinal region does not sweep up as it should. The two extremes of the abdomen are almost level. If the curve did ascend properly, the depth from the croup to the stifle would be too short, while the posterior member would become too long. In other words, the anterior member is not so much out of proportion as is the forepart of the trunk.<sup>7</sup>

It is quite evident that the horse on *W III* (Fig. 39, Example IV) is by a different hand from that on *W II* (Fig. 38, Example III). The peculiar manner in which the limits of the various muscles are marked confirms this conclusion. The salient features and muscles are marked off from one another without subtle transition. As a result, the whole has a rather rough appearance. Then again, another change of hand is sensed on the slab immediately following, *W IV* (Example V).

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<sup>6</sup> On the basis of stylistic criteria and details of carving, some investigators have attempted to date the various sides of the frieze and pediments in different periods, and assign the various slabs, or groups of slabs to different schools of sculptors. For example, cf., von Lücken, *Die Entwicklung der Parthenonskulpturen*; Schweitzer, *JdI* LIII, 1938, pp. 1 ff., *JdI* LIV, 1939, pp. 1-96, "Zur Kunst des Parthenon-Meisters," and footnote 9 below. It seems, however, from the one detail of the mane, that a conscious attempt was made to attain variety. Hence, the differences must be reckoned as resulting more from wilful intention for the sake of variety, rather than from individual traits of the various sculptors, and were very likely planned and laid out by the master workman or designer of the frieze.

<sup>7</sup> This may be considered another point which precludes assigning different dates to the various sides of the frieze.



Here the modeling is more subtle. The mane of the horse ridden by *Fig. 7* is like that of the horse ridden by *Fig. 2* on *W II* (*Fig. 38*). It consists of finely serrated strands of hair. The second horse on *W IV*, that ridden by *Fig. 8*, has a third type of mane. The masses of hair are blocked out roughly, and undulated along the length of the mane. Individual strands of hair, however, which comprise the masses, are not carved at all. This gives the mane an impressionistic, rather than a naturalistic appearance.

The other horse, *W IV Fig. 8*, whose forequarters overlap the hindquarters of Example V, is the same in practically every detail, even the gait, except that the positions of the members are different. The carpus and hock joints are even more clearly worked. One is struck by the sculptor's complete knowledge of the displacement of the bones and the shape of the joint under changing conditions of movement. The mane, as has already been described, is of a new type, the third thus far. This type of mane is again repeated on *W V Figs. 9* and *10*, slightly modified in the case of *Fig. 9*, where the clumps of hair are even more sketchy and impressionistic and wholly without interior detail.

A change of hand is again seen on slab *W V Fig. 9* (my *Fig. 40*, Example VI). The detail pointing to this fact is the exceedingly recessive lower jaw of the horse, more so than on the rest of the frieze. The lower jaws are so short throughout the frieze that the lower lips would not meet the upper if the mouth were closed. Another detail pointing to a change of hand is the working of the splints other than by means of two parallel lines or grooves as on Example III (*Fig. 38*). Rather, the head of the rudimentary metatarsal bone is seen at the hock with the splint proper stemming from it in the form of a narrow and distinct surface, which continues down to the fetlock. This method is unique thus far, and also the most realistic.

The other horse on the same slab (*Fig. 40*), the forequarters of which are partly covered by the horse above (Example

VI), is exactly like the latter, and thus supplies us with the details which were not available on the other. The skin over the triceps is beautifully rendered, showing the fineness of its texture and the veinous structure beneath the surface. The difference in appearance of the posterior members is due to the different movement. The change is well understood. The femoral biceps are more strongly tensed, while the hock joint reveals the bones in clear and correct displacement. The skin on the inside face of the gaskin is lined by a heavy vein which reaches the hock, while the torsion of the cannon of the member supporting the weight, as opposed to the one which is raised, is understood. The sculptor carved the splints of the working member off center. The xiphoid vein is fine and reaches the inguinal region. The stifle fold is very realistically drawn, taut across the hollow of the flank.

The next slab, *W VI Fig. 11*, reveals a horse similar to the two above. In fact, the left anterior member overlaps the thigh and buttock of the horse mounted by *Fig 10* of the adjacent slab. The mane of this horse, *Fig 11*, is of the first type, the fine one. The xiphoid vein begins in a most unusual place, directly above the elbow and almost on the triceps, rather than just behind the anterior member on the inferior face of the thorax. It flows out and reaches as far as the inguinal region, even continuing above the stifle across the hollow of the flank. The horse is caught in the moment of complete suspension in the gallop. The body has just been propelled forward by the hind members. The anterior members extend themselves prior to coming down to take the weight. The muscles of the thigh and buttock show the effect of the work they are doing. The remaining members are like those on the two horses on *W V* above.

The sculptural technique of the horses on *W VII Figs. 13, 14*, is somewhat reminiscent of the standing horse on *W III Fig. 5*, Example IV (*Fig. 39*) above. The parts are cut with sharp lines of demarcation between planes, and further characterised by the extensive use of incisions to show the creasing



of the base of the neck near the withers. The same sort of sharp cutting appears on the horses *W VII Figs. 13, 14*. The mane of the horse mounted by *Fig. 13* is of the second type, such as was seen before on *W II Fig. 3*, and consists of loose locks which break over the general outline of the mane, giving the whole a somewhat wild and disheveled, but more naturalistic appearance than the impressionistic third type. The mane of the horse mounted by *Fig. 14* is a variation of the first type, except that the cutting is deeper, with notches here and there in the outline to break the otherwise continuous line. Furthermore, the mane is doubled by means of a line parallel to the outside limit at which the shorter hairs end, behind which the longer ones are seen. The appearance, generally, of the horses on this slab is not so finished as the majority of those studied thus far. Many unseemly black shadows result at points of transition from one surface to another, because the carving occasionally lacks subtlety.

A sharp contrast is immediately noticed on the next slab, *W VIII* (Figs. 41-42, Example VII), where a very beautifully modeled horse rears up as a bearded man, who braces himself on a rock, reins him in. The head is distinctive. In comparison with the rest of the frieze, the bony structure is somewhat overdone. The mane is interesting too. It is of the third type, but doubled as on the horse on *W VII Fig. 14*, and is blocked out in rough masses with no interior carving. This makes for an impressionistic appearance.

The horses on the slab which follows, *W IX Figs. 16 and 17*, are exactly like Example VII (Figs. 41-42). The points of similarity are: first, the particular shape and character of the eyes, all three of which might be interchanged; secondly, the types of manes, rendered in double rows of hair and roughly blocked out in masses with a minimum of interior carving; and thirdly, the location of the creases in the neck, cut in the same way on all three horses.

The most interesting horse on the west side of the frieze is to be found on *W XII Fig. 23* (my Fig. 43, Example VIII).

Its position is very unusual, almost of genre quality. The horse is standing perfectly still, quietly rubbing its nose along the cannon, as horses often do. More interesting are the proportions, not those of a mature horse, but of a young one. The animal here is a filly. The limbs are all longer than they would be on an older horse. As a matter of fact, they actually measure longer than the members of the horses elsewhere on the frieze. The withers, too, are almost non-existent. This may be partly owing, however, to the position of the neck. The sculptor may or may not have known that the withers are underdeveloped on the young horse. Nevertheless, the loose fleshy character of the skin over the patella and the stringy, bony quality of the members are both unmistakable indications that the sculptor understood quite well the peculiarities of young horses. This is the only example of a young horse on the whole frieze.

A completely different spirit prevails on the north and south sides of the frieze. On the west side the individual groups are separated from each other largely through the different action of each. All the horses of the long sides are for the most part engaged in a similar activity, moving forward in the full swing of the procession. The groups of the west side are each comparatively distinct and separate compositions, with the point of interest turned toward the center of each particular group. On the long sides, however, the direction of interest does not remain stationary, but flows into the next, so that the whole is a continuously moving composition with practically no interruptions. This is largely accomplished by showing as many as four to six horses and their riders abreast, all moving quickly forward.\*

Not all the horses on the long sides are completely visible to the spectator. Frequently, only the outside horse is seen in complete outline, and often it is even then partially covered by the horses to the front and rear. At any rate, the outside horses are necessarily carved in exceedingly low relief, much

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\* See the plan in Smith, *Sculptures of the Parthenon*, p. 59, fig. 113.

lower than the horses in the background, and certainly lower than the isolated horses on the west side. The outside horses on the long sides, even though incompletely or almost completely outlined, are carved with very few planes and surfaces, and are at times almost two-dimensional. Very often the effects of depth are attained more by means of linear foreshortening, than by three-dimensional carving. Hence, the anatomy is very often rendered impressionistically by means of a few simple devices. When such is the case, the proportions cannot be accurately measured.

The effect of the frieze as a whole, as a moving kinetic composition, is most amazing. It is almost like seeing a cinema. If it were possible to make a screened opening the size of a slab, and then pass the frieze continuously behind it while the spectator remained stationary, the cinema-like effect would be complete. It seems as if the sculptor used but a few horses as subjects, and literally drove them around the frieze for the benefit of the onlooker. One need but walk along keeping the frieze at eye level, as most of the casts in the Metropolitan Museum are, to sense this cinematographic effect.

Since the horses on the long sides are largely in a bad state of preservation, only the very best and most complete examples are chosen for analysis below.

The first example on the north side, *N XLII* near *Fig. 133*, is from the north-west corner (my *Fig. 44*, Example IX). The figures are last in the procession, and so are not yet moving forward as those ahead. As on the west side, they are still in the midst of preparations.

The movement of the procession has already reached the horses on the next slab, *N XLI*, where four horses overlap. The horse on which *Fig. 129* (my *Fig. 45*, Example X) is riding, and which is in very low relief, appears, however, in complete profile. At the forequarters the relief is actually three figures deep, so the anatomy of this region necessarily is rendered very flatly.

Moving along the frieze and passing over a few slabs in a bad state of preservation, one comes to *N XXXVIII* on which the horses are already moving at a full gallop. The rider, *Fig. 118*, is whipping up his horse urging him to go faster. Despite the shallow relief, which made it necessary to render some details by means of incised drawing, the aspect is very lively and complete. The horse is remarkably like the one on *XLI Fig. 129* (my *Fig. 45*, Example X), even with regard to the attachment of the head, which in this case is even more impossible because of the gait. During movement the horse normally extends the head as far as possible to facilitate an easy passage of air through the trachea, which is somewhat constricted when the head is bent downward. The eye of this horse is better, mainly because of the deeper cutting. The same flatness, however, prevails on those parts nearest the outside surface. All four members are off the ground. The horse is caught in the actual moment of complete suspension. The horses immediately ahead on the next slab, *N XXXVII*, are also ridden in various positions of the stride during a gallop, while the horse ridden by *Fig. 115* is also in complete suspension. Thus the procession moves along.

An unusual horse is *N XXXI Fig. 96* (Example XI). Unlike the other horses here, it is carved in as high relief as on the west. Many details are reminiscent of those on the west side. For example, this is the first horse on the north which clearly shows the atlas bone and a well defined depression for the parotoid groove. This results in the better attachment for the head. The muscular and bony parts also are much more clearly cut than elsewhere along this side. This may result, however, from the deeper cutting possible, owing to the uncrowded composition on this slab.

The south side is most poorly preserved. The condition of the majority of the slabs is so bad that no one horse from that side is wholly complete. This is most unfortunate, for the procession is moving very rapidly, more so than on the north, to judge by the wildly flying manes and tails. As one would

naturally expect, the scattered details seen along this side are exactly like those of the other two sides. There are no unique mannerisms added to the repertoire of details already noted on the west and north sides. Isolated measurements are correspondingly the same here. No one horse is in a sufficiently complete state, however, for a proportional or anatomical analysis to be made. Hence, no analyses of the horses from the south side are included in the discussion.

On the frieze as a whole, one notices many pertinent details which some horses have in common, and others do not. For example, the manes, already mentioned. The temptation is to assign to the same hand the horses, and, by way of corollary, the slabs linked by similar details. When the horses are studied more closely, however, it soon appears that they are very much alike, even as to technique, and, except for a few details like the xiphoid vein, there are actually few essential differences between them. Instead, one is rather more impressed by their great similarity, especially with regard to proportions, actual measurements, and gait. When groupings are attempted on the basis of a few significant details, the manes, for example, the criteria thus set up soon dissolve, because individual horses sometimes fall into all the groups, or at least more than one. In this fashion the groups are gradually reduced in number, until but one is left, the whole frieze. Yet it is quite possible to distinguish between hands as one proceeds along the frieze from slab to slab. Thus *W II* (Fig. 38, Example III) is probably by a hand different from *W III* (Fig. 39, Example IV), simply because on the latter the xiphoid vein is rendered, and left out on the former. The rendering of the eye, the splints, and the parotoid groove can likewise help distinguish one hand from another.<sup>9</sup>

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<sup>9</sup> Schweitzer, *JdI* LIII, 1938, pp. 1 ff., and *JdI* LIV, 1939, pp. 1-96, "Zur Kunst des Parthenon-Meisters," attempts to change the customary sequence of execution of the Parthenon sculptures. By means of various devices, drapery, composition, and modeling, he attempts to prove that the sequence from (1) metopes, (2) frieze, (3) pediments, should be arranged (1) metopes, (2) east and west frieze

On the east pediment of the Parthenon the heads of the horses from the angles are still extant, Helios' horses from the south-east angle, and Selene's (Fig. 46, Example XII) from the north-east. The date of the pediments is absolutely certain. Marble for the figures was brought to the workshops in 439-438 B. C. and work begun on them the following year. The actual wages paid the sculptors for the year 434-433 B. C. are recorded in the building inscriptions.<sup>10</sup> The pedimental horses thus fall within the next decade after the frieze. The other horses from the pediments have been lost. The heads from the angles of the east pediment are the only ones extant.<sup>11</sup>

The head of Selene's horse is somewhat better attached than generally on the frieze, taking into account the difference in media. The nostril is extremely well worked, especially the skin on the rim which folds back realistically, revealing its cartilaginous substructure. The supraorbit is the best thus far, for, it blends into the surrounding surfaces most naturally. The proportions of the head are correct, the length being twice the distance from the limit of the mandible to the forehead.

Helios' horses are not so well preserved. The lower jaw is missing and the side of the head, that toward the spectator, has weathered considerably. The few well preserved details available for study compare exactly with the horses at the other end of the pediment. The measurement varies by but

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and east pediment, (3) north and south frieze and west pediment. See his p. 91, *JdI* LIV, for his conclusions. He takes great pains to show how the west frieze forms the prototypes for the rest of the frieze, p. 5. As the analyses show, there does seem to be an unmistakable connection between the west and the other sides. But nothing appears, from the analyses of the horses at least, on the basis of which one may venture to assert that the west is earlier, and hence the prototype of the others.

<sup>10</sup> Dinsmoor, *AJA* XXV, 1921, pp. 243-244.

<sup>11</sup> Smith, *Sculptures of the Parthenon*, pl. I for Helios' horses, and pl. 6 for Selene's; Richter, *Sculpture*, pp. 42, 112, fig. 351; Richter, *Animals*, p. 17, fig. 69.

half a centimeter. The length is 0.660 m. from the tip of the nose to the poll, and 0.325 m. from the inferior limit of the mandible through the eye to the forehead.

There seems to be no differences between horses of the frieze and pediment. Any which exist are probably owing to the difference of techniques, relief, and sculpture in the round, rather than to any increased knowledge of anatomy on the part of the sculptor. There unfortunately exist but two heads with which one is forced to compare the many horses on the frieze. Nevertheless, advances must not be taken for granted, even though the former is almost a decade later. The study of the extant material does not lead to this conclusion.

### 3. TEMPLE OF APOLLO AT BASSAE (FIGS. 47-48, EXAMPLES XIII-XIV)

There has been some difference of opinion concerning the date of the Temple of Apollo at Bassae. It is now generally agreed, however, that the frieze should be placed within the decade 430-420 B. C.<sup>12</sup>

In considering the few examples of horses from the frieze of the Temple of Apollo at Bassae, it must not be assumed

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<sup>12</sup> Anderson, Spiers, and Dinsmoor, *Architecture*, p. 112, date the beginning of the building activity 450 B. C.; Dinsmoor, in his forthcoming study of this temple, dates the frieze 425 B. C.; Smith, *Catalogue*, p. 270, gives the date 430 B. C.; Richter, *Sculpture*, p. 34, collects all the material pertaining to the date and gives it as 420 B. C.

There is no modern complete or definitive publication of the building, other than that projected by Dinsmoor. The best set of photographs, though far from complete, is that published by Brunn-Bruckmann.

*BrBr*, pls. 87 and 89, the only ones with horses; Smith, *Catalogue*, pp. 270 ff.; Cockerell, *The Temple of Jupiter Panhellenius at Aegina and of Apollo Epicurius at Bassae near Phigaleia, in Arcadia*; Ivanoff, *Annali XXXVII*, 1865, pp. 29 ff., "Il Bassorilievo del Tempio di Apollo Epicurio a Basse, presso Figalia"; Dinsmoor, *MMS IV*, 1932-1933, pp. 204 ff.



that sophistications are to be found, even though the work at Bassae is a decade later than the Parthenon pediments. Differences do exist between the Athenian work and that at Bassae. It appears, however, that these differences are not quantitative, that is, based on the sculptor's knowledge of anatomy. Rather, the differences are for the most part qualitative, and are the direct result of the better craftsmanship of the Parthenon sculptures.

In certain respects, however, the Bassae horses are more developed than the Parthenon horses. The nostril is better worked here (Fig. 47, Example XIII) than even on Selene's horse, apart from considerations of better finish. The recessive lower jaw, a general characteristic of the Parthenon horses, is not the case with the Bassae horses. In general the proportions of the latter are correct, except that the trunk is a little too full in the vertical dimension. A step toward greater realism, however, is the abandoning of the use of the decorative xiphoid vein, so prevalent on the Parthenon horses.

One of the most interesting examples from the Bassae frieze is that of a dying horse (Fig. 48, Example XIV). It is of much better workmanship than Example XIII. The attitude is very difficult to execute. The horse is sinking down on all fours with the head folded under, so that the superior face touches the ground.

The immediate differences which come to mind, when one compares the Bassae and Parthenon friezes, do not rest so much on proportional and anatomical details as on the coarser or more refined manner of execution of these details. The Bassae frieze is worked in much higher relief. More modeling was thus possible. Yet, the sculptor has not taken advantage of this, for he has not included even so much detail as appears on some of the shallower reliefs from the Parthenon frieze. Despite the very recessive jaw on the Parthenon horses, when the heads of the two friezes are compared, the connection between them is unmistakable. The size of the horses in relation to the human figure is relatively the same for both.



Isocephalism also prevails. Except for the rendering of the eye, the more realistic xiphoid vein, the better nostril, the daring attempt to show a dying horse, and the more realistic curve of the inferior limit of the abdomen, the work at Bassae adds little to the general fund of anatomical details common among Greek sculptors when the Parthenon marbles were executed.

#### 4. TEMPLE OF ATHENA NIKE

The very fragmentary horses on the frieze of the little temple dedicated to Athena Nike on the Akropolis at Athens are remarkably like the Bassae horses in general over-all appearance. Unfortunately, not enough details are extant to support this conclusion definitely or with certainty. The little monument is dated about 427-424 B. C., and is probably contemporary with the frieze of the Temple at Bassae.<sup>13</sup> Like the Bassae frieze the composition is an open one. Besides being in a rather bad state of preservation, the figures are actually so small that positive statements concerning their connection with Parthenon or Bassae horses cannot be made.

#### 5. SYRACUSAN DEKADRACHMS, KIMON AND EUAINETOS TYPES (Fig. 49, Example XV)

This chapter closes with the Syracusan dekadrachms issued after the defeat of the Athenians, 413 B. C.<sup>14</sup> These coins,

<sup>13</sup> Smith, *Catalogue*, pp. 239 ff.; *BrBr*, pl. 117; Blümel, *Der Fries des Tempels der Athena Nike*; Anderson, Spiers, and Dinsmoor, *Architecture*, p. 126 (see also table at the end of text) believe that it was planned before the Propylaea, but probably built afterward; Dinsmoor, *Proceedings of the American Philosophical Society*, 1939, pp. 124 ff., on the basis of some literary and astronomical data determines the date as 427-424 B. C.

<sup>14</sup> Head, *Historia Numorum*, p. 176 figs. 98, 99; Hill, *Select Greek Coins*, pl. LI no. 1; Richter, *Sculpture*, p. 44; Richter, *Animals*, p. 17, fig. 75, very good photograph; Rizzo, *L'Arte della Moneta*, p. 84, fig. 66, p. 80, fig. 58 nos. 36, 38, p. 90, fig. 80; Gallatin, *Syracusan Dekadrachms of the Euainetos Type*, pls. X-XII.

where signed, bear the names of Euainetos, Kimon, and sometimes Eukleides. They fall approximately into the last decade of the century. As was the case on so many Parthenon slabs, the artists have shown four horses abreast (Fig. 49, Example XV). The relief is not so flat as it often had to be on the Parthenon. When one considers the total depth of the relief and the total size of the coin itself, this is something at which to marvel. The technical problem of showing four horses abreast was facilitated by placing them in a sort of three-quarters view. Only the forequarters of the three horses behind that on the outside, which is in complete profile, had to be rendered. Since each of the latter appears partially against the background, the sculptor was therefore able to cut deeply, and could thus attain an illusion of greater depth.

In many respects the analysis of the coin proves more fruitful than that of the Bassae frieze. The execution of the anatomy is actually more detailed on the coin than on the frieze. (See Example XV.)

Like the Bassae (Figs. 47-48) and Athena Nike friezes, the dekadrachm falls under the influence of the Parthenon sculptures (Figs. 38-46). Although no essentially important or very marked anatomical advances were noted on the Bassae horses, the contrary is the case here. Except for the slender quality of the trunk, which may be a peculiarity of the "western" horse for which Syracuse was famous in antiquity, the proportions of these horses are actually better than any heretofore. This is largely due to the better understanding of movement, so that the distance from the point of the shoulder to the top of the withers is not necessarily oversize. Furthermore, unlike the Parthenon horses, the anterior member is in correct proportion. This is directly due to the fact that the shape of the trunk is better understood. The inferior limit of the abdomen sweeps gracefully upward in an ascending curve from the xiphoid to the inguinal region. The section of the trunk from the withers to the xiphoid region is of correct depth, and in proper relation to the smaller depth of the section from the croup to the stifle.

An outstanding feature is the attempt, not particularly successful, to resolve the problem of showing four horses abreast by having them appear in a partial three-quarter view. Except for the outside horse, they do not move at right angles to the spectator, as was the case on the Parthenon frieze. Instead, they approach him diagonally, the forequarters at least, in a line moving from the right down toward the left.

## 6. SUMMARY

The decorative quality of archaism does not pass altogether from use by the time of the Olympia horses (Figs. 33-35, Examples I-II), standing as they do on the very threshold of the classical period of Greek art. The few simple planes with sharp lines of demarcation by which the head is blocked out, and the slender trunk, are traces of an earlier period. Indicating marked anatomical advances, however, are the realistic shape of the head, still long, but nevertheless naturalistically hollowed out on the underside; the more subtle supraorbit; the correct location and approaching realism of the nostril; the feeling for the texture of the fine skin and hair on the buttock, thigh, and stifle. All these details indicate that these horses stand at the beginning of a new phase in the development of Greek art, the realistic, but idealised, classicism of the Parthenon sculptures. In fact, one decorative feature is carried bodily over to the latter without much sophistication. It is the whimsical, though beautiful, xiphoid cartilage and vein which undulates along the abdomen as far as the inguinal region.

By the time of the horses of the Parthenon frieze (Figs. 38-46, Examples III-XII), all the earlier tendencies toward greater realism are carried farther. The eye is completely understood, although it is not always correctly rendered throughout the frieze. The attachment of the head, in no instance actually realistic, although it includes the atlas bone and defines the parotoid groove, is somewhat more natural in many instances along the frieze. Although the shape and

proportions of the head are correct, the lower jaw is invariably recessive, so that it would not meet the upper, were the mouth closed. The trunk is in correct proportion, but not deep enough at the anterior half. As a result, the anterior member is thrown out of proportion. The shoulder blade, which appears very clearly on the Olympia horses (Figs. 33-35), is now correctly placed at the proper angle. For the first time the carpus and hock joints are fully understood. The displacement of the bones is revealed quite clearly in many cases. Some difficult positions and attitudes are attempted by the Parthenon sculptors. In one instance, a young horse is shown quite distinct from the other mature horses (Fig. 43, Example VIII). Unlike the rendering of the human figure in contemporary sculpture, where often a child is rendered as an under-sized adult, the different proportions and anatomical peculiarities of the young horse are fully understood. The movement of the horse is no longer a problem, for the sculptor understands the various gaits, and does not hesitate to display them. In many cases the various slabs are like so many snapshots. Unlike snapshots, however, which are frozen, the horses have a living quality. The eye follows the rhythm of the gait of a few horses moving around the frieze.

The east pediment, with the head of only one of Selene's horses (Fig. 46, Example XII) sufficiently well preserved for a complete analysis, does not offer much evidence as to what took place, in the next decade. It must suffice to say that on the example analysed, the head is well attached, that is, as well attached as on some, and better than on most horses of the frieze. The parotoid groove and the atlas bone are well understood. The nostrils are very good indeed. The eye is distinguished by the fact that the upper lid can actually close over the eyeball.

The horses from the frieze of the Temple of Apollo at Bassae (Figs. 47-48, Examples XIII-XIV), of a decade later, are of nearly as good a design, not workmanship, as the Parthenon sculptures. Advances are nevertheless to be noted

in the lessening recessiveness of the lower jaw, the completely realistic nostril, the partially successful attempt to rectify the shape of the trunk by deepening its anterior portion, and, finally, the abandonment of the decorative xiphoid vein. The sculptor is fully as daring as the Parthenon sculptor who did the filly (Fig. 43). He attempts to portray a dying horse falling on all fours with forelegs doubled under, the head, with eyes closed, completely relaxed so that its dead weight falls to the ground (Fig. 48). Here, then, the rendering of a closed eye appears for the first time, and not without some measure of success.

By the last decade of the fifth century, the action of the body is hardly a problem. The sculptor understands such a small detail as the changing shape of the muscles of the neck in relation to the action of the anterior members (Fig. 49, Example XV). The shape of the trunk is at last grasped, so that the anterior member is in good proportion. Finally, the length of the shoulder, that is, the distance from the point of the shoulder to the top of the withers, is not over-size even when the horse is moving. An added subtlety is the slight difference of angle taken by the pasterns. On the members extending toward the ground they are snapped back more sharply than on those leaving it.

## CHAPTER VI

### THE FOURTH CENTURY, 400-300 B. C.\*

#### 1. THE NEREID MONUMENT (Fig. 50, Example I)

No absolutely certain date has been assigned to the Nereid Monument at Xanthos. It was discovered by Sir Charles Fellows before the middle of the nineteenth century, and its extant remains are now in the British Museum, London.<sup>1</sup> Dates ranging from the middle of the fifth century to the second quarter of the fourth have been advanced for this monument.<sup>2</sup>

The turn of the fifth to the fourth century is perhaps the

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\* For analyses of the examples discussed below see Appendix II.

<sup>1</sup> Fellows, *Journal in Asia Minor*, p. 233; Fellows, *Xanthian Marbles*; Michaelis, *Annali*, 1874, pp. 216 ff., and *Annali*, 1875, pp. 68 ff.; Michaelis, *MontInst* X, 1874-1875, pls. X-XVIII.

<sup>2</sup> For a summary of the dating see Smith, *Catalogue* II, pp. 9 ff.; Also Lethaby, *Greek Buildings Represented by Fragments in the British Museum*, pp. 183 ff. Furtwängler, *Meisterwerke der Griechischen Plastik*, pp. 220 ff., dates it after the middle of the fifth century, saying it is of original Ionian style and does not imitate Athenian work; Benndorf, *Heroön von Gjölbaschi*, p. 243, and Wolters, *Die Gipsabgüsse antiker Bildwerke in historischer Folge erklärt* (1885), p. 308, both assign it a date at the end of the fifth century; Six, *Jahrb. d. Kunsthistorischen Sammlung d. allerhöchsten Kaiserhauses* IX, 1891, and XI, 1893, dates it 375-360 B. C.; Schröder, *JdI* XXIX, 1914, pp. 154 ff., and *AM* XLVIII, 1923, pp. 91 ff., assigns it a middle fifth century date; Kjellberg, *Studien zu den attischen Reliefs*, p. 103, dates it 370-360 B. C.

For a complete review of the problem of the disposition of the friezes as well as stylistic considerations, see: Schuchhardt, *AM* LII, 1927, pp. 94-161; for discussions of architectural questions see, Niemann, *Das Nereiden-Monument in Xanthos*; Lethaby, *JHS* XXXV, 1915, pp. 208-224, "The Nereid Monument Re-Examined"; Krischen, *AM* XLVIII, 1923, pp. 69-92, pls. VIII-XIV, "Der Aufbau des Nereidenmonuments von Xanthos."

most plausible date,<sup>3</sup> because the friezes on which horses appear seem to belong stylistically to this period. The carving of the horses on the first frieze<sup>4</sup> precludes any close connection with those of the Bassae frieze (Figs. 46-48). Furthermore, stylistic connections between the Nereid horses and the Syracusan dekadrachms of the Kimon and Euainetos types (Fig. 49) cannot be postulated, because of the extremely high quality of workmanship on the coins, as opposed to the decorative and architectonic nature of the marbles. Moreover, even if the date of the Nereid Monument were absolutely certain, the monument would offer no definite landmark in the development. Its immediate interest for us is more as an example of provincial workmanship when Greek art had already reached its zenith.

Of the four friezes, the so-called first frieze is perhaps of best workmanship. One slab (Fig. 50, Example I), the most complete, and at the same time the most typical of the frieze as a whole, is chosen for analysis.<sup>5</sup>

The workmanship of the frieze, and of the horses particularly, is not of the best quality. The modeling is very flat. The outline of the horses is cut back almost at right angles to the outer surface, so that the whole produces somewhat the effect of a jig-saw puzzle. The figures seem separately cut and

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<sup>3</sup> Dinsmoor, *verbally*, believes that the Nereid Monument must be dated after the Erechtheum, because the capitals of the latter are copied on it. Hence, the Nereid Monument may be dated after 413 B. C., when work on the Erechtheum was temporarily abandoned, but (as he believes) not much later because the workmen were acquainted with the ceiling construction of the Propylaea (437-432 B. C.). Richter, *Sculpture*, p. 34, places it c. 400 B. C.

<sup>4</sup> Smith, *Catalogue* II, pp. 10 ff., labels it so.

<sup>5</sup> Smith, *Catalogue* II, p. 12 no. 852. The measurements given in the proportional analysis were taken from the casts in the Metropolitan Museum.

The few examples of horses on the other small friezes are so crude that nothing is to be gained from an analysis. They show but the barest minimum of details sufficient to recognize the animals as horses.



attached to the background. From the anatomy nothing is revealed to distinguish sufficiently the animals so as to permit assigning them a definite place in our chronological scheme. The horses are perhaps as definitely datable as the monument itself, since the limits may be set around the turn of the century, perhaps 410-390 B. C. This conclusion is based partially on the proportions, which, with a heavy square trunk and short neck, seem to presage similar features later in the fourth century.<sup>6</sup> The action, also, is violent, with parts of bodies overlapping, yet quite unlike the vigorous action of the frieze where the composition is more open. The overcrowding on the Nereid frieze is not nearly so subtle as on the Parthenon, where the overlapping actually helps to achieve the impression of a strong forward movement. The action here, however, is arranged in a more developed manner, leading to the frieze of the Mausoleum (Fig. 56), where the composition, though quite similar, is handled in a more sophisticated manner.<sup>7</sup>

## 2. FUNERARY AND VOTIVE RELIEFS

The first definite landmark of the fourth century is the grave stele of Dexileos (Fig. 51, Example II) in the Kera-meikos, Athens, dated 394 B. C. by the inscription.<sup>8</sup> The workmanship and delineation of anatomy are far superior to that on the horses on the Nereid Monument (Fig. 50). Together with many other late fifth century and early fourth century grave stelai, the Dexileos Monument has been regarded as continuing the style set by the Parthenon sculptures (Figs.

<sup>6</sup> See *Examples VII and VIII* below (Figs. 57, 58).

<sup>7</sup> See *Example VI* below (Fig. 56).

<sup>8</sup> Conze, *Die attischen Grabreliefs*, no. 1158, pl. 248; *BrBr*, pl. 438; Collignon, *Histoire de la Sculpture Grecque* II, pp. 187 ff.; Furtwängler, *AM* V, 1880, p. 23; *JdI* X, 1895, pp. 204 ff.; Dittenberger, *SIG<sup>3</sup>*, 30; *IG* II, 2084; Richter, *Sculpture*, pp. 25, 63, fig. 215; Diepolder, *Die attischen Grabreliefs*, p. 26.

Dated from the context of the inscription which says Dexileos fell in the Corinthian War, 394 B. C., cf. Xenophon, *Hell*, IV 2.9 ff.

38-46). Nevertheless, an examination of the horse, in particular, clearly sets this monument, as well as many others of contemporary date, apart and distinct from the earlier work.<sup>9</sup>

The fifth century inspiration of the monument is unmistakable. The isocephalic composition, the flying cloak and drapery, the high quality and finish of the workmanship, all seem to have been directly inspired by the Parthenon frieze (Figs. 38-45). Of unmistakable fifth century character are the proportions of the trunk, a little long in the horizontal dimension. The croup, too, in comparison with the back and loins, is excessively long. It is also exaggerated on fifth century horses in similar positions, that is, rearing up.

On the other hand, many features are sufficiently advanced to place this horse in a period definitely after the fifth century. The eye is much more realistic than on the Parthenon frieze, and much better than on Selene's horse (Fig. 46). The protrusion of the eye is somewhat more subtle. The modeling of the brow, the temples, and supraorbit are marked by subtler transitions than on the Parthenon. The ear is most natural indeed. The concha opening is turned to the rear as the ear is thrown back, thus revealing the high emotional pitch of the animal. The forelock and mane are very well done. Heretofore an element of decoration attended the execution of the mane and forelock. In this instance, however, they both resemble actual hair, while the forelock seems to protect the poll. The xiphoid vein, realistically rendered and felt to be under the skin, is also no longer decorative. The execution of the various skin textures first seen in some instances on the Parthenon, continues here. The fine tissue over the triceps and on the inside of the gaskin have a different appearance to the eye, and give a totally different sensation to the fingers from that of the surrounding areas. The same is true of the buttock and thigh, where the skin is differentiated from that of the outside of the gaskin. The posterior mem-

<sup>9</sup> See the discussion of the Echelos-Basile Relief below (Fig. 52).

ber, only one is whole, is excellent. Such features as the rim of fine hairs around the top of the coronet, the contour of the sesamoid bone behind the fetlock, are all well understood and exquisitely rendered.

Throughout the fourth century the use of the horse as a motif on grave and votive monuments apparently was very popular, to judge from the number of examples found. Sometimes a rider is shown, as on the Dexileos stele (Fig. 51), or else a chariot group or similar motifs.<sup>10</sup> In the National Museum at Athens are a number of such monuments, the best of which, perhaps, is the so-called Echelos-Basile relief (Fig. 52).<sup>11</sup> This relief is about contemporary with the Dexileos stele (Fig. 51), and, like it, displays features reminiscent of the fifth century, and at the same time others point to a later date.<sup>12</sup> The composition is exactly like that of the Syracusan dekadrachms of c. 413 B. C. (Fig. 49) and after: four horses supposedly abreast, but actually arranged in a three-quarter view, with only the outside horse in true profile, just as on a krater found by Professor Robinson at Olynthus, which dates from the end of the fifth century B. C.

The horse in complete profile reveals the long trunk of the

<sup>10</sup> See Bryaxis base, *Example VII* below (Fig. 57); also two small reliefs in the MMA, discussed below, p. 97 f.; for other examples, see Conze, *Grabreliefs*, no. 1153, pl. 247, no. 1160, pl. 249, no. 1161, pl. 250, no. 1162, pl. 216, no. 1161A; and also the Barracco and Medinaceli reliefs discussed below, pp. 97 f., notes 31-32.

<sup>11</sup> Svoronos, *Das Athener Nationalmuseum I*, pp. 120 ff., no. 1783, pl. XXVIII; Wolters, *AM VIII*, 1893, pp. 212 ff.; Kavvadias, 'Εφ., 1893, pp. 109-112, 129-146, pls. 9, 10; Collignon, *Sculpture Grecque II*, pp. 203-204, fig. 90; Rouse, *Greek Votive Offerings*, p. 87; Kekule von Stradonitz, *Programm zum Winkelmannsfest*, Berlin 1905, pp. 6 ff., "Echelos und Basile." Name is actually Iasile, 'Εφ., 1937, p. 113.

<sup>12</sup> Wolters, *AM VIII*, 1893, p. 212, says it is shortly after the Parthenon frieze; Collignon, *op. cit.* II, p. 203, believes it is contemporary with the Dexileos stele; Svoronos, *op. cit.* I, p. 129, by some circuitous reasoning based largely on the iconography, gives the date 403 B. C. See also Robinson, *Olynthus*, V, pp. 96-100, no. 112 for vases with similar quadriga and two figures in the chariot.

fifth century, and the same high quality of workmanship associated with the best fifth century work. The third horse from the outside, although moving forward, turns his head so as to face the spectator, as also on the Olynthus vase. This position is very difficult to render because of the complicated foreshortening. Yet the sculptor does this with some measure of success. Dramatic effect of this sort is not to be found in the fifth century. This precludes a date close to the Parthenon, despite the generally fifth century quality of the workmanship. The heads could almost be replicas of Dexileos' horse, so close are they as regards the shape and position of the eye, the rendering of the mandible, the forehead, the brow and supra-orbit, and the realistic action of the ears, all quite definitely non-fifth century elements.

### 3. SCULPTURES FROM THE TEMPLE OF ASKLEPIOS, AT EPIDAUROS (Figs. 53-54, Examples III-IV)

Among the extant sculptures from the Temple of Asklepios at Epidauros there are an Amazon astride a horse from the western pediment (Fig. 53, Example III), and two akroteria (Fig. 54, Example IV) consisting of Nereids or Aurai mounted sideways.<sup>13</sup> The inscriptions, which record the building contracts of the temple, mention the name of Timotheos in connection with the execution of the sculptures.<sup>14</sup> Because of the obscure meaning of a word in the inscription, *τύποι*, some doubt has been raised as to whether Timotheos

<sup>13</sup> National Museum, Athens: no. 138, Amazon on horseback; nos. 156, 157, akroteria. Cavvadias, *Fouilles d'Épidaure*, p. 20, pl. VIII no. 1, pl. XI no. 1, for the Amazon; p. 20, pl. VIII nos. 2, 3, 3a, pl. XI nos. 16, 17, for the akroteria. Defrasse and Lechat, *Épidaure*, akroteria, pp. 73 ff., figs. on pp. 74, 75; Amazon, pp. 63 ff., fig. on p. 64. Picard, *La Sculpture Antique*, pp. 93 ff., fig. 41; Richter, *Sculpture*, pp. 207 ff., figs. 710, 711, 716, 717.

<sup>14</sup> Cavvadias, *op. cit.*, pp. 78 ff., no. 241, lines 36 and 90; *Εφ.*, 1886, p. 145, no. 103; *IG IV*, Argolid, no. 1484. "Timotheos contracted to make and furnish *typoi* for 900 drachmas, his guarantor was Pythokles." And "Timotheos contracted to furnish akroteria on one pediment for 2240 drachmas, his guarantor was Pythokles."

actually executed the sculptures mentioned. If the meaning of the word is "models," then Timotheos was the designer, while others did the actual carving.<sup>15</sup> But if, as others maintain, the word means "reliefs," it is then possible that he did the actual work. If the word does mean "reliefs," however, the question of which reliefs are meant, still remains to be answered.<sup>16</sup> It is quite possible that the akroteria mentioned in the inscription as contracted for with Timotheos may be the very ones analysed below (Fig. 54, Example IV). They were found near the western front of the temple, and are believed to have been originally on that end.<sup>17</sup> It is not certain, however, that Timotheos did these particular two akroteria. A total of six were actually contracted for.

At any rate, we have three horses from a building which, on the basis of the building inscriptions, may be safely dated within the first quarter of the fourth century.<sup>18</sup> Because of Timotheos' connection with the sculptures, the latter must have been executed toward the end of the first quarter of the century, since he was still active around the middle of the century, when he worked on the sculptures for the Mausoleum at Halikarnassos. His activity must be bounded by a reasonable life span. The upper limit may thus be approximately at the end of the first quarter of the fourth century.

It is most unfortunate that these two examples are in such a fragmentary state of preservation. The Amazon's horse (Fig. 53, Example III) is better than those of the akroteria (Fig. 54, Example IV).<sup>19</sup> Unlike the Dexileos stele (Fig.

<sup>15</sup> Foucart, *BCH* XIV, 1890, pp. 589 ff.; Lippold, *JdI* XL, 1925, pp. 206 ff.; Neugebauer, *JdI* XLI, 1926, pp. 82 ff.

<sup>16</sup> Richter, *AJA* XXXI, 1927, p. 80; von Blumenthal, *Hermes*, LXIII, 1928, pp. 341-414.

<sup>17</sup> Cavvadias, *op. cit.*, p. 21.

<sup>18</sup> *Ibid.*, p. 83; Anderson, Spiers and Dinsmoor, *Architecture*, date this building c. 380 B. C.

<sup>19</sup> Richter, *Sculpture*, p. 209, in the discussion concerning Timotheos' part in the sculptured decoration of the temple, considers the akroteria to be of better workmanship than the Amazon on horseback. Thus she bolsters her argument that Timotheos did some reliefs, nos.

51), the Epidauros sculptures add very little to our information about the character of the representation of the horse in the fourth century. One cannot mistake them, however, for other than what they are. The long croup of the Amazon's horse seems anachronistic beside the very realistic xiphoid vein. The hollow of the flank, crude though it is, still reveals the femur of the thigh and the last rib of the thorax. Likewise, the play of the thigh and buttock muscles, the femoral biceps in particular, are stressed in a much more dramatic way than in the fifth century, when they appear for the first time on the Parthenon frieze (Figs. 38-45). The surfaces of the akroteria are rough from weathering, so that the texture of the skin, however rendered, is now obliterated. On the Amazon's horse, however, the fine veinous skin, especially over the triceps, is distinguishable from that of the surrounding surfaces. Although the horses of the akroteria are in diagonal positions, the croup is not incorrectly elongated as heretofore.

#### 4. THE MAUSOLEUM AT HALIKARNASSOS (Figs. 55-56, Examples V-VI)

The Mausoleum at Halikarnassos, from about the middle of the century, provides us with some excellent examples of horses. The date of this monument is certain, 353 B. C., when Mausollos died. Some of the most famous sculptors of that age worked on the monument, continuing their work even after the demise of their patron, Artemisia, wife of Mausollos, who died two years after her husband.<sup>20</sup> On this fourth

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173 and 174, that is the *ῥύποι*. The impossible attachment of the Amazon's leg to the trunk leads her to the conclusion that a sculptor as famous as Timotheos would not make such an error. Yet, as the analysis of the akroteria shows, an even more flagrant error was committed on the akroteria, namely, the discrepancy of the planes of the sides of the horses. The hind quarters are 0.05 m. thicker through the points of the haunches than the forequarters through the chest.

<sup>20</sup> Pliny, *Nat. Hist.* XXXVI 30, 31, mentions the four sculptors, Scopas, Bryaxis, Timotheos, and Leochares. He also relates that

century monument the earlier spirit of idealisation is reduced to a minimum. Instead, there are revealed elements apparently presaging something new, something which finds its fullest expression in Hellenistic times. Relatively little is added in the way of further developments or sophistications in rendering the anatomy. The distinctive characteristic, however, is the novel way in which the sculptor uses, even perverts, the anatomy to gain a desired and predetermined effect (Fig. 56, Example VI).

The architectonic quality of the carving of the horse from the colossal quadriga group by Pythios (Fig. 55, Example V) is most striking. In rendering the anatomy the sculptor confines himself to a minimum of detail, blocking out the large masses within the outline of a rather stocky solid-set animal, which probably formed part of the crowning ornament on the very pinnacle of the pyramid surmounting the building.

The most interesting of the slabs of the Amazon frieze are the four from the east side,<sup>21</sup> that supposedly were executed by Scopas, according to Pliny.<sup>22</sup> Pliny's mention of the four famous sculptors has aroused the curiosity of many scholars, who have made a number of attempts to assign the various extant slabs.<sup>23</sup> The most interesting slab of the four from the east

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Pythios, who was one of the architects, did the colossal quadriga group which surmounted the pyramid. In the same paragraph he states that Mausollos died in the second year of the 107th Olympiad, 353 B. C.

<sup>21</sup> Smith, *Catalogue* II, nos. 1013-1016.

<sup>22</sup> *Nat. Hist.* XXXVI 31.

<sup>23</sup> Brunn, *Sitzungsberichte d. philos.-philol. Cl. d. bayerischen Akad. d. Wissenschaft*, 1892, pp. 114 ff.; Winter, *AM* XIX, pp. 157 ff.; Treu, *AM* VI, 1881, pp. 412 ff.; Murray, *Greek Sculpture* II, pp. 296 ff.; Wolters and Sieveking, *JdI* XXIV, 1909, p. 171, Beilagen I and II; Richter, *Sculpture*, pp. 204-205.

M. Bieber, *verbally*, believes that the four great sculptors probably worked the large sculptures in the round, not the four sides of the frieze which she also believes was probably inside the funeral chamber.

Dinsmoor, *AJA* XII, 1908, pp. 3 ff., and *verbally*, does not share this latter view.



side, perhaps the most interesting of the whole frieze, is that on which an Amazon is shown astride a horse but turned completely around facing toward the animal's hindquarters (Fig. 56, Example VI).<sup>24</sup> The horse stretches and strains forward with all his strength. It is a wild and exciting composition in which very little indeed of fifth century detachment remains, even in comparison with such animated scenes as those of the Bassae frieze. The horses and human figures here are not only realistic as at Bassae (Figs. 47-48)—the realism extends beyond mere material delineation. The high pitch of excitement carries over from the cold marble to the spectator, in whose eyes the scenes are not mere inanimate representations of reality, but reality itself. When one seeks to discover how the sculptor accomplished this amazing feat, and makes an analysis of the dead marble, it appears that the artist knew the anatomy so well that he took liberties with it, creating new anatomical arrangements, which, although they give a vivid impression of reality, are in fact quite unreal and impossible in nature (See Example VI).

Anatomical details appearing for the first time are: the rendering of the ribs of the thorax just behind the anterior member; and the muscularity of the shoulder. Noteworthy, however, is the non-naturalistic handling of individual details to give a definitely premeditated realistic effect. For example, the mouth is open, even though the horse normally keeps it closed when working. The sculptor also adds much to the total dramatic effect by showing the tongue. The head is thrown up, and the ears are back, while the forelock falls away from the poll toward the mane. The ribs are cut very deeply and boldly. They stand out sharply as the animal inhales deeply as it strains forward. Because of the impossible stretching of the posterior members, one would expect the sculptor to fall into difficulties over the stifle fold and the hollow of the flank, that is, over the attachment of the member.

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<sup>24</sup> Smith, *Catalogue* II, no. 1015, pl. XVII; *BrBr*, pl. 98; Richter, *Animals*, p. 18, fig. 76.

Instead, he invents a new anatomical arrangement by stretching the stifle fold tightly across, and blending it into the only slightly hollowed flank, which still reveals the femur of the thigh in a very convincing manner. The hinge of the joint would actually be broken if the member were in this position. Yet it is by means of this invented gait that the artist convinces the spectator completely. The sculptor wished to show the horse leaping forward excitedly. Rather than give a stopped action pose, as did his predecessors in some instances on the Parthenon frieze, he accomplishes his end by perverting a normal movement into one of his own invention. He keeps the line of the croup very flat and level with the back and loins, and thus does not break the diagonal upward rush of the body. The anterior members, which are missing, must be reconstructed as outstretched in front of the animal. The hind feet are firmly planted on the ground far to the rear of the body, and thus enhance the feeling that the animal is straining and stretching forward. This is not merely a stylised flying gallop, a stereotyped way of showing a horse in motion, due to ignorance on the part of the artist. Instead, it is a carefully planned and thought-out composition, designed to give a very definite realistic effect, impossible in a simple imitation of nature.

The horses on the other slabs, *Brit. Mus. nos. 1013* and *1016*, are very similar, varying at most 0.05 m. in all proportions. The same exaggeration of muscles and violent movement, only slightly less dramatic, appears on these two slabs.

##### 5. BRYAXIS BASE (Fig. 57, Example VII).

Contemporary with the Mausoleum but of an entirely different character is the Bryaxis Base, now in the National Museum, Athens.<sup>25</sup> Both the base and the missing statue it

<sup>25</sup> Svoronos, *Athener Nat. Mus.* I, pp. 163 ff., no. 1733, pls. XXVI, XXVII; Collignon, *Sculpture Grecque* II, pp. 306-308, figs. 156, 157; Reinach, *GBA*, 1894, March 1, p. 255; Couve, *BCH* XVI, 1892, pp. 550-559, pls. 3, 7; Kavvadias, *Εφ.*, 1893, pp. 40-48, pls. 4-7; Richter,

supported were by Bryaxis, one of the artists who worked on the Mausoleum.<sup>26</sup> The inscription on the base is dated about the middle of the fourth century.<sup>27</sup> Not a major work, it was, in fact, necessarily of secondary importance to the statue which rested upon it (Fig. 57, Example VII).

This type of horse and rider, a favorite subject in this century, actually begins as far back as the fifth. It continues in vogue to the end of the fourth and even later. In the National Museum in Athens there are quite a number of small monuments on which the horse appears.<sup>28</sup> On grave stelai the horse and rider type, as on the Dexileos Stele (Fig. 51), was also very common.<sup>29</sup> In the Metropolitan Museum are two small reliefs of the horse and rider type. One is rather crude, the other, a little larger, of excellent workmanship (Fig. 59).<sup>30</sup> Almost exact replicas of the latter, that of better workmanship, are found in the Medinaceli

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*Sculpture*, p. 211, fig. 723; Wolters, *AM* XVI, 1891, p. 252; Picard, *La Sculpture Antique*, pp. 95 ff., fig. 43.

<sup>26</sup> Pliny, *Nat. Hist.* XXXVI 30, 31.

<sup>27</sup> Homolle, *BOH* XV, 1891, pp. 369-373; Kavvadias, *Δελτ.*, VII, 1891, pp. 34-36, no. 6, p. 89; *CIG*<sup>2</sup> II-III, 3130; Dittenberger, *SIG*<sup>2</sup> 1074; for a clear photograph of the inscription see Richter, *Sculpture*, fig. 724.

<sup>28</sup> Svoronos, *Athener Nat. Mus.* I, no. 1493, pl. LXXIX; no. 1418, pl. LXVI; no. 1386, pl. LII; on pl. XXXIII there are six small plaques, very crudely done, of minor character and probably commissioned by private people.

<sup>29</sup> Conze, *Grabreliefs*, no. 1153, pl. 247; 1160, pl. 249; 1160, pl. 250; no. 1153; see also p. 90, above, and footnotes 10, 11. Diepolder, *Grabreliefs*, pp. 16, 19, pl. 9; Blümel, *Katalog der griechischen Skulpturen des 5. und 4. Jahrhunderts* III, p. 31, no. K 30, pl. 39.

<sup>30</sup> For the smaller one: *BMMA* VIII, 1913, pp. 29, 174; Richter, *Handbook MMA*, p. 170 and text to *BrBr* 729 left, fig. 3. For the larger and better one: Richter, *Animals*, p. 18, fig. 79, and *BrBr*, pl. 729 left. She dates it at the end of the fourth century; Richter, *Sculpture*, p. 85, fig. 353; Richter, *Handbook MMA*, 1930, p. 274, fig. 193; Shear, *Art Bulletin* X, 1927, p. 228; Reinach, *Burlington Magazine* XLV, 1924, p. 8, fig. A; *BMMA* III, 1908, pp. 16, 761; Johnson, *AJA* XXXVI, 1932, p. 276, fig. 2; Richter, *MMA Guide*, New York, 1930, p. 170; Poulsen, *Εφ*, 1937, p. 189.

Palace in Madrid,<sup>31</sup> and in the Museo Barracco in Rome.<sup>32</sup> The pose of the rider, with one hand held high on a level with the horse's poll, has been variously interpreted, and has occasioned some controversy and discussion.<sup>33</sup>

#### 6. ALEXANDER SARCOPHAGUS (Fig. 58, Example VIII).

This chapter ends with a sarcophagus which represents one of the most outstanding personalities of the fourth century, Alexander.<sup>34</sup> It is generally dated in the last quarter of the fourth century, on the basis of the identification of some of the figures as portraits of Alexander, and further from the identification of the burial place of Abdalonymos, the last king of Sidon who was established on the throne by Alexander.<sup>35</sup>

One of the most interesting animals on the sarcophagus is the dying horse on one of the long sides (Fig. 58, Example VII). It is reminiscent of a similar motif on the Bassae frieze.<sup>36</sup> Here the artist has no difficulty in depicting the distortions of anatomy as the horse sinks to the ground, heavily breathing its last. He has captured the fleeting expression of the dying horse in the widely distended nostrils which almost seem to be quivering, in the fallen lower jaw,

<sup>31</sup> Hübner, *Annali* XXXII, 1862, p. 101, pl. F; Reinach, *Burlington Magazine* XLV, 1924, p. 8, pl. C.

<sup>32</sup> Barracco and Helbig, *La Collection Barracco*, pl. LII. Richter, text to *BrBr*, pl. 729 left, fig. 2.

<sup>33</sup> Reinach, *Burlington Magazine* XLV, 1924, pp. 4 ff.; Johnson, *AJA* XXXVI, 1932, pp. 276 ff.; Richter, text to *BrBr*, pl. 729.

<sup>34</sup> Mendel, *Catalogue des Sculptures aux Musées Impériaux Ottomans*, no. 68; Winter, *Der Alexandersarkophag aus Sidon*; Hamdy Bey and Reinach, *Une Nécropole Royale à Sidon*, pls. XXI, XXXIV, XXXV; Richter, *Sculpture*, pp. 37, 220, fig. 748, pl. IV; Richter, *Animals*, p. 18, fig. 80.

<sup>35</sup> Richter, *Sculpture*, fig. 176; Winter, *Alexandersarkophag*, pls. 10, 17, 18; Studniczka, *JdI* IX, 1894, pp. 204-244, "Über die Grundlagen der geschichtlichen Erklärung der sidonischen Sarkophage," and *AA*, 1894, pp. 1-23.

<sup>36</sup> Winter, *Alexandersarkophag*, pl. 1; cf. *Example XIV* in chapter V above (Fig. 48).

in the flesh around the lips hanging limply and completely relaxed. The eye is impressionistically modeled, with the eyeball and eyelids faintly differentiated. The anterior member, that folded under the animal with knees on the ground, was rendered rather perfunctorily on the Bassae frieze, largely because of the sculptor's ignorance. Here, however, the pose presents no problem to the artist. He recognizes the contorted position of the shoulder, the point of which juts out far beyond the breast. He also understands the manner in which the muscles of the arm bunch up, the way the knee becomes knob-like.

The horses on all four sides are very much alike. Hence the analysis (Example VIII) below is of no one particular horse, but a general statement including the salient characteristics of all.

The wild scene (Fig. 58), with its high emotional pitch, finds its prototype on the Mausoleum frieze (Fig. 56). Although a minor monument, the sarcophagus is nevertheless of first quality workmanship, and must therefore be considered a definite landmark of the later fourth century. The utter sophistication, the ability to force the anatomy to portray a high state of emotion, is less evident here than on the Mausoleum. Yet, as revealed in the case of the dying horse, something of that spirit here appears in a lesser degree. The latter, aside from any anatomical advances, in intent toward the spectator, is remote indeed from the dying horse on the Bassae frieze (Fig. 48) of the preceding century.

## 7. SUMMARY.

The uncertainties of date of the Nereid Monument (Fig. 50, Example I) are not absolutely cleared by an examination of the horses. The work is provincial, yet, in general detail, seems to be in the fifth century spirit. It is quite different in other respects, however. For instance, the composition of the friezes is not of true fifth century character; the violent action, somewhat blurred by the overlapping of the figures,

contrasts with the Bassae frieze (Fig. 47-48), where somewhat similar action results in quite a different composition. Nevertheless, from the study of the horses, one can venture to say that the date may be fixed at the turn of the century, perhaps 410-390 B. C.

The Dexileos Stele (Fig. 51, Example II) forms the first definitely dated landmark of the fourth century. The fifth century spirit of detachment and idealism pervades this monument, many of its details perhaps directly influenced by the Parthenon frieze (Figs. 38-45). That it is of a later date is revealed, however, by such minor matters as the handling of the fetlock joint with the sesamoid bone posteriorly, the careful working of the rim of fine hairs around the top of the coronet, and the little tuft of hair of the footlock. Furthermore, the xiphoid vein is no longer an element of decoration, nor are the mane and forelock so treated. Instead, they give the impression of actual hair. The eye is subtler and better rendered than in the fifth century. The transitions of the planes of the brow, the temples, and the supraorbit are delicate and very gradual. The ear is quite natural, used as a subtle aid to enhance the whole expression of the animal.

In the sculptures from Epidauros (Figs. 53-54, Examples III-IV), two decades after the Dexileos Stele (Fig. 51), there appears a further crystallisation of characteristics definitely fourth century, with a lessening influence of fifth century qualities. The croup of the akroteria horses is shortened, despite the diagonal position of the animal as a whole. This is not true of the Amazon's horse where the long fifth century croup remains. There is already an intimation of the later use of the muscularity, a use which results in more dramatic effects by the middle of the century. In the case of the Amazon's horse, the femoral biceps and semi-tendinosus of the thigh and buttock are sharply bunched up to give the impression of power as the animal moves forward.

The middle of the century, with the Mausoleum horses (Figs. 55-56, Examples V-VI) especially, marks a dividing

line between two eras, the fifth century spirit, the last vestige of which appears here for the last time, and the beginning of a totally new spirit which continues to develop into what we have come to think of as Hellenistic. The slight dramatic use of the anatomy at Epidauros is extended. In fact, the artist is no longer concerned with giving a representation of a real horse in an inanimate medium. Rather he attempts to give the impression of a live horse, and even goes so far as to pervert normal anatomical arrangements in order to accomplish this end. This is best seen on the horse with the Amazon riding backwards, *Example VI* (Fig. 56).

The spirit continues even in the case of minor works, such as the late fourth century reliefs in the Metropolitan Museum, in the Barracco and Medinacelli reliefs, in the Byraxis base (Fig. 57, *Example VII*), and finally on the Alexander sarcophagus (Fig. 58, *Example VIII*). This spirit of dramaturgy is finally crystalised on the latter. The dying horse from the Bassae frieze (Fig. 48) when compared with that from the Alexander sarcophagus reveals vast differences. The former does not die like a particular horse, but dies the death of all horses. On the other hand, that from the Alexander sarcophagus dies like an individual, focusing the pity of the spectator on itself alone (Fig. 58).



## CHAPTER VII

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### THE HELLENISTIC PERIOD, THIRD TO FIRST CENTURY B. C.\*

Definitely dated examples of horses from third century edifices are not available for study because of the sparse building activity on the Greek mainland at this time. Also, no sculptures are extant from such third century buildings as the temple at Messa in Lesbos, the temple of Apollo at Sminthe, the temple of Athena Polias at Pergamon, all in Asia Minor where the leading artistic centers of the Greek world were then located. More than a century elapses between the last fourth century example and the first of certain date in the Hellenistic period. This gap is most unfortunate. Because of the paucity of examples, those chosen for discussion in general lack the quality of importance of most of the examples discussed in the previous chapters.

A bronze statuette of Alexander the Great astride a rearing horse (Fig. 60), now in Naples, the date of which cannot be ascertained on external evidence, opens the discussion. It stands definitely at, or just after, the end of the fourth century, and at the beginning of the Hellenistic period.<sup>1</sup> In style the horse is reminiscent of the Alexander sarcophagus (Fig. 58). The bony structure of the head, though understood, is not too detailed. The shape and volume are good, but the head itself is in bad relation to the neck, which is far too short. The same faulty integration of parts occurs in other

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\* For analyses of the examples discussed below see Appendix II.

<sup>1</sup> BrBr, pl. 355b; Lawrence, *Later Greek Sculpture*, p. 99; Bernoulli, *Darstellungen Alexanders*, p. 48, figs. 29, 30; Winter, *Kunstgeschichte in Bildern: Hellenistische Skulptur*, 11/12 Heft, p. 335, fig. 1; Johnson, *Lysippos*, pp. 225 ff.; Suhr, *Sculptured Portraits of Greek Statesmen*, pp. 118-120 and references cited there.

places, so that the head gives no reliable module for measuring the proportions. Characteristic of the fourth century manner are the proportions of the trunk, deep in the vertical dimension and relatively short in the horizontal. The members are completely out of proportion. They are so slight that they could not possibly support the body. There is little to distinguish the anatomical details of this horse from those on the Alexander sarcophagus, despite the better workmanship of the latter. The purpose served in considering such a minor work at this point, is to bring attention to the fact that the typical style of the end of the fourth century probably continued on well into the third.

Not until after the beginning of the second century do definitely dated monuments appear with horses as part of the sculptured decoration. The first to be considered are from the Great Altar at Pergamon (Fig. 62, Example I). These horses are not only of major importance, they also typify what scholars have come to consider the very essence of the Hellenistic style. The Great Altar is placed within the reign of Eumenes II. His dates have generally been given as 197-159 B. C. Construction of the Altar may not have begun until 180 B. C.<sup>2</sup> There are but a few horses on the frieze, and even fewer are complete, only one is sufficiently preserved for a thorough analysis (Example I). Nevertheless, the horses compare very favorably in quality and in general conception with the very best work of the preceding periods.<sup>3</sup>

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<sup>2</sup> Anderson, Spiers, and Dinsmoor, *Architecture*, p. 168, and Robertson, *Handbook of Greek and Roman Architecture*, p. 157, place it within the reign of Eumenes II.

Richter, *Sculpture*, p. 38, dates the frieze 180-160 B. C.; Schober, in *Bericht über den VI. internationalen Kongress für Archäologie, Berlin* (1940), pp. 407 ff., "Zur Zeitbestimmung des Pergamonaltars," believes the building construction commenced about 180 B. C. and continued until the death of Eumenes in 159 B. C.

<sup>3</sup> *Altertümer von Pergamon* III 2: Winnefeld, *Die Friesse des grossen Altars*, pp. 22 ff., fig. 5, pl. IV, V, X, XIII; Pontremoli and Collignon, *Pergame*, pp. 76 ff., fig. on p. 85, pl. VIII; Puchstein, *Sitzungsberichte d. Berl. Akad.*, 1888, p. 1231, and 1889, p. 229;

On the same side appears a fragment of a very interesting horse. (*Altertümer III*<sup>2</sup>, pl. V). Its position resembles that first seen on the Mausoleum frieze, the stretching, leaping, straining horse (Fig. 56). Only the hind quarters and a few fragments of the members are extant. The left posterior member is stretched far behind the animal, so that the hinge of the hock joint has completely straightened out, with the result that the cord and the tuber calcis have disappeared. The knee has dropped, while that joint, too, has almost completely straightened out, so that it forms a very open angle between the femur and the tibia, as revealed in the hollow of the flank. The femoral biceps are not marked at all. The entire shape of the thigh and buttock has been altered to suit the needs of the abnormal position of the member. The anterior members are stretched far out in front of the animal. The position corresponds exactly to that of the horse mounted by the Amazon on the Mausoleum frieze, *Example VI*, Chapter VI above (Fig. 56). Like the Mausoleum sculptor in the fourth century, this artist has invented a new arrangement of the anatomy to suit the needs of the pose, which, although unnatural, still gives a very realistic impression.

The composition of the frieze has come to be regarded as typically Hellenistic. The distinguishing features of these horses are the artist's predilection for overemphasizing the muscularity, and the movement of the animal. This spirit was first seen in the fourth century on the Mausoleum frieze (Fig. 56), and partly on the Alexander sarcophagus (Fig. 58). Here, however, this tendency finds its fullest expression, so that Helios' horses, for example, resemble anatomical models used by art students. The skin seems to have been

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Overbeck, *Griechische Plastik*, II<sup>4</sup>, fig. 198 E; Collignon, *Sculpture Grecque* II, p. 520, fig. 269; Conze and Schuchhardt, *Vorläufiger Bericht über die Arbeiten zu Pergamon 1886-1888*, p. 54 b; Trendelenberg, *Die Gigantomachie des pergamenischen Altars*; von Salis, *Der Altar von Pergamon*, pp. 24 ff.; Schuchhardt, *Die Meister des grossen Frieses von Pergamon*, pp. 21 ff., fig. 12; Napp, *Der Altar von Pergamon*, fig. 26.

stripped away, especially over the arm and shoulder, revealing the detailed character of the many muscles below. All the muscles are shown in as full play as possible, with little or no differentiation between those in movement and those at rest. The artist could render the skin if desirable, as he did over the xiphoid region, and even include such small details as the web of fine veins near the surface, as opposed to the larger ones deeper down which stand out more boldly.

The abnormal movement inaugurated on the Mausoleum reaches its greatest extension here. They strain and pull, their nostrils dilate, they tug at the bit. Every movement is made in its widest possible scope, like the gestures of actors on a great open-air stage, who gesticulate broadly so that even those in the last rows may see. The frieze, as a whole, is not like an actual scene, as was the case with the Parthenon frieze, but rather a group of actors playing a piece before an audience of whose reactions they are very conscious, playing on the emotions of that audience as on a musical instrument. The reality of the Parthenon frieze is forgotten here. On the Parthenon, the horses of the gods have descended to earth for men to see; whereas here, mere earthly actors play the part of horses of the gods!

In sharp contrast to the monumental animals of the Great Altar, the horses from the monument of Aemilius Paulus at Delphi of about contemporary date, or only a little later, 168-167 B. C., seem of minor importance.<sup>4</sup> The carving is not of the best quality, and the proportions are sometimes rather curious. The tendency is to make the neck long and swan-like, with the trunk, too, often much elongated. The heads are very small indeed, ridiculously small like that of a

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<sup>4</sup> Biéńkowski, *Les Celtes dans les Arts Mineurs Gréco-Romains*, pp. 165 ff., figs. 240-247; Lawrence, *Later Greek Sculpture*, p. 118; Reinach, *BCH* XXXIV, 1910, p. 433; Pomtow, "Delphica III," *Berl. Wochenschrift*, 1912, p. 409.

Plutarch, *Aemilius Paulus* XVIII-XXII; Livy XLIV 40, 4-40.8; inscription is dated 168-167 B. C., commemorating Battle of Pydna mentioned by both Plutarch and Livy.

dinosaur on its long neck. The anatomy is not very detailed, In spite of the bad workmanship, however, the composition is thoroughly characteristic of the time. Here, too, use is made of exaggerated histrionic movement, but not quite so successfully as on the Pergamon frieze. Some of the animals are stretched out straining forward, but the feeling of extreme exertion is not well conveyed. Instead, one realizes the sculptor's ignorance of the anatomy. He knew the types, the dying horse, for example, on the north side of the frieze, but was not able to make the composition appear convincing. The sensation of ebbing strength and parting life is lacking.

The posterior members support the hind quarters rather solidly, while the right foot is retarded, and the left, now missing is advanced. The anterior members are not like those of other horses, but resemble human arms. The elbow has dropped, exposing the whole arm in an impossible manner, while the forearm rests on the ground. The anterior members should actually bend under the body, buckling at the knees, and not extend forward. The neck is rigid and bends sharply about half way. The head is swung completely over with the top of the face on the ground. It seems as if the horse were about to stand on its head, rather than sinking to the ground. With such errors in anatomy, it is not strange that the scene should be most unconvincing.

Of a decade or so after the Aemilius Paulus monument, but of controversial date, is the Temple of Artemis Leukophryene at Magnesia on the Maender. Dates ranging from the beginning to nearly the end of the second century have been assigned this building. The date c. 150 B. C., that is, after 150 B. C., seems the most plausible in the light of evidence available.<sup>5</sup>

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<sup>5</sup> Humann, *Magnesia am Maeander*: Watzinger, "Die Bildwerke," and Kohte, "Die Bauwerke," pp. 84-90, 184-185, figs. 82, 85, pls. V, XII, XIII, XIV; Herkenrath, *Der Fries des Artemisions von Magnesia am Maeander*, Berlin dissertation, 1902.

Von Gerkan, *AA*, 1923/1924, pp. 344 ff., dates it on architectural and epigraphical grounds 129 B. C.; Krahmer, *JdI* XL, 1925, pp.

The frieze of the temple is not of monumental scale, nor of especially distinguished workmanship. Artistically it scarcely measures up to most of the major works of the fifth and fourth centuries, or with the Great Altar at Pergamon. The horses are all in a more or less fragmentary condition. The analysis (Example II) below is therefore a general summary, rather than a study of any one particular horse.

The most interesting subjects on the whole frieze are the two dying horses, one on *Slab 13* from the east side, the other on *Slab 13* from the south.<sup>6</sup> That from the east is very close to death. The forequarters have settled to the ground, while the head is just about to double under. The hindquarters are raised high by the posterior members, which are extended far behind the body, though still supporting it. The pose is momentary, like a snapshot, just before the animal sinks completely dead. The dying horses from the Bassae frieze (Fig. 48) and the Alexander sarcophagus (Fig. 58), are both more relaxed, that is, nearer death, than this one. On the south side of the frieze the dying horse is even farther from death. The animal is on the point of collapse, after the impact of the fatal blow delivered but a moment before. The knees of the anterior members buckle as the horse falls forward, while the posterior members strain to uphold the body. Nevertheless, they are slowly giving way. The head hangs limply, not yet doubled under, but sufficiently forward to throw the weight ahead, beyond the present center of gravity, thus pulling the animal off balance. This might be the first cliché in a series of the dying horse, that on the east side a more advanced stage, and the horses from the Bassae frieze

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183 ff., figs. 4-7, 9, p. 197, dates the building c. 129; Lawrence, *Later Greek Sculpture*, p. 115, dates the frieze 200-170 B. C.; Anderson, Spiers, and Dinsmoor, *Architecture*, date the building c. 150 B. C.; Hahland, *Bericht über den VI internationalen Kongress für Archäologie*, Berlin (1940), pp. 523 ff., "Datierung der Hermogenesbauten," dates the Artemis temple after 196 B. C.

<sup>6</sup> Humann, *Magnesia*, pl. XII 13, and pl. XIII 13, both now in Paris.

and Alexander sarcophagus the last stage, where the animal gasps its final breath.

In the first century B. C., as in the third, monuments definitely dated on external evidence do not exist. Thus the investigation must perforce end here. But even more important than the lack of examples for study is the fact that during this time the Greek style was fast becoming something entirely different from what it had been even as recently as the second century, namely Graeco-Roman. The Graeco-Roman style does not, strictly speaking, properly fall within the scope of a survey of the horse in Greek art.

#### SUMMARY

There is good reason to believe that some late fourth century characteristics and tendencies were carried over into the third. In the second century at least, certain fourth century traits still persist. Hence, it is not amiss to assume that they were somewhat more widely current in the century immediately before. Outstanding is the continuance of the fourth century method, that is, an imitation of that method, of rendering such well known types as the dying horse, and the straining, stretching horse. Except for the sculptor of the Great Altar at Pergamon, most of the artists do not understand the subtleties of anatomical detail pertaining to these motifs. The distortions of anatomy in the case of the dying horse from the monument of Aemilius Paulus, for example, are ludicrous, and indicate, therefore, that the artist was imitating blindly without understanding what was needed to make the scene convincing.

The Hellenistic characteristic well known from the human figure, that of overemphasizing the muscularity and movement, is seen quite clearly on the horses from the Great Altar at Pergamon. This tendency goes so far that the figure is carved as if the skin were removed, revealing all the intricacies of the construction of the upper layer of muscles. The method is to include every detail, over-emphasizing each to the fullest extent, so that the figure has a wild distracting air.



## CHAPTER VIII

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### BRIEF CHRONOLOGICAL SURVEY OF THE HORSE IN GREEK ART

Horses of geometric date are not homogeneous in character or style. Apart from the differences among the rendering techniques of the three principal media themselves—bronze, terra cotta, and vase painting—other differences exist within each medium, especially in the two plastic ones, to the extent that the bronzes fall into five, and the terra cottas into four distinctive divisions or classes.

Not all horses of geometric date are "geometric," that is, stylised. The quality of stylisation has long been considered the distinguishing characteristic of all art from the geometric period. Yet the earlier divisions of the bronzes and terra cottas are not truly stylised. *Bronze Division B* (Fig. 7) is probably the only definitely stylised class. The other divisions vary in respect to greater or less stylisation. The criterion employed in classifying the geometric examples, therefore, could not be based entirely on naturalistic concepts, as was the case in later periods, rather than on the similarity or dissimilarity of certain details of rendering. It is noteworthy, however, that more and more anatomical details, not necessarily naturalistic, are gradually included, so that by the end of the geometric period, *Bronze Division E* (Figs. 10, 11) and in *Terra Cotta Division D* (Fig. 16), it is quite apparent that naturalistic concepts of rendering were beginning to be employed.

Beginning with the Orientalising and Early Archaic Periods, 700-550 B. C., Chapter III above, the examples analysed are employed as datum points between which undated examples may be placed. On the basis of anatomy, proportion, and movement, each hitherto undated horse is placed

between the *termini—post* and *ante quem*—formed by two examples of certain date. In contrast to the geometric period, here the criterion of analysis is almost wholly naturalistic. Non-naturalistic elements, however, especially certain decorative tendencies in vase painting, are as important for the chronology as those which are done in imitation of nature.

The tendency of Greek art to conform to, and even to imitate nature, is borne out by the analyses of the various definitely dated examples which were studied in chronological order. The evolutionary character of Greek art in general was not assumed to be a fact. Rather, this principle was actually reaffirmed by, and derived from the investigation.

The examples listed below fall into two categories: those which are discussed in the chapters above, and which form the datum points; and those which appear for the first time. The former are marked with an asterisk, \*, and reference is made to the example number and to the specific chapter and Appendix II in which they appear. The others are followed, when possible, by a description of their provenance, present location, a brief bibliography, and dating.

#### End of the Geometric Period

c. 700 B. C. \*Figurine. See Ch. II, *Br. Div. E no. 1*, above.

#### The Orientalising and Early Archaic Periods, 700-550 B. C.

Not all the anatomical details recognized are correctly rendered. Neither the ear nor the eye are ever in correct position. The supraorbit is not understood. The trunk is long and narrow, and in no instance in correct proportion. It is difficult to predict the proportions. For, as the drawing is made, one original error necessitates many compensating errors. In no case is the gait naturalistic. The flying gallop is rare on Protocorinthian ware, but quite the contrary is true of the Corinthian.

#### SEVENTH CENTURY

700-675 B.C. \*Aryballos from Thebes. Ch. III, Ex. I (Fig. 17).

675-650 B.C. \*Macmillan Aryballos. Ch. III, Ex. II (Fig. 18).

- 650-625 B.C. \*Chigi Vase. Ch. III, Ex. III (Fig. 19).  
 \*Delo-Melian Vase. Ch. III, Ex. IV. Perhaps between  
 635-620 B.C. (Fig. 20).  
 625-600 B.C. \*Frieze of Temple A, Prinias. Ch. III, Ex. V (Fig. 21).

## SIXTH CENTURY

## First Quarter 600-575 B. C.

- c. 580 B.C. \*Timonidas Vase. Ch. III, Ex. VI (Fig. 22).  
 Statuette of Horse and Rider. From Grumentum in  
 Lucania. Now in Brit. Mus. Bronze. Bibl.: *Burlington  
 Fine Arts Club Catalogue*, 1903, pl. XXVII,  
 XXVIII; Walters, *Select Bronzes*, pl. 1; Payne, *Ar-  
 chaic Marble Sculpture*, p. 7, fn. 4; Richter, *Animals*,  
 p. 15, fig. 52, dates it in the first half of the 6th  
 century B.C. Cf. *Timonidas Vase* (Fig. 22) above.

## Second Quarter 575-550 B. C.

Statuette of a Walking Horse. Said to have been  
 found near Locri. Now in Met. Mus., N. Y. Bronze.  
 Bibl.: Richter, *Greek and Etruscan and Roman  
 Bronzes in MMA*, p. 8, no. 14, dates it first half of  
 6th century B.C., believing it is reminiscent of  
 Corinthian and Ionian vases; see also Richter,  
*Animals*, p. 15, fig. 51. Date: It seems to be after the  
*Timonidas Vase*, above (Fig. 22), and perhaps before  
 the *Amphiaraos Krater*, below (Fig. 23).

## The Ripe Archaic Period, 560-480 B. C.

The great oblique muscle of the abdomen, the triceps, the  
 ribs, and the coronet are the elements noted for the first time.  
 By 540 B.C. the supraorbit and the zygomatic ridge are  
 recognized, but only suggested. The xiphoid vein appears,  
 but is decoratively rendered. The animal is still longer than  
 high.

By 525 B.C. the play of the pasterns, as in the case of the  
 Siphnian frieze, is recognized for the first time. The supra-  
 orbit is at last understood. But conventional rendering of  
 the xiphoid vein persists, and even continues as late as Nos.  
 697 and 700 (Figs. 28-30). The withers appear for the first  
 time on the latter two examples, which are about a decade and  
 a half after the Siphnian frieze. By this time the working

of the triceps appear to be understood. The structure of the carpus and the cannon is attempted. For the first time the gait can be said to approach naturalism.

Just after the turn of the century, on the Bronze Horse in the Metropolitan Museum (Fig. 31), the muscles of the neck and the breast begin to look naturalistic. The flank is hollowed, and reveals the femur of the thigh. The stifle fold disappears into the flank. The proportions are good, but the archaic oblong quality remains.

By the end of the period, c. 480 B. C., the action of the members is better understood. The horses on the Syracusan dekadrachm (Fig. 32) are quadrated for the first time.

\* c. 560 B.C. \*François Vase. Ch. IV, Ex. I (Fig. 24).

c. 550 B.C. \*Amphiaraos Krater. Ch. III, Ex. VII (Fig. 23).

Terra Cotta Relief. From Metaurum in Italy. Now in Met. Mus., N.Y. Terra cotta, fragment, one half of a larger panel. Bibl.: Richter, *Handbook MMA*, 1930, p. 80; Richter, *BMMA* XX, 1925, p. 16, fig. 4; Van Buren, *Archaic Fictile Revetments in Sicily and Magna Graecia*, p. 162, metope 1; Orsi, *NS*, 1902, p. 128, fig. 3, nos. 1, 4, 5. The other half showing two more horses, see, Orsi, *op. cit.*, p. 128, fig. 3, no. 5a. Date: Van Buren dates it about the middle of the 6th century. Very little anatomical detail. Crude workmanship. Proportions and general outline well before *Siphnian Frieze*, below (Figs. 25-27).

Figurine. From Dodona. Now in the Louvre. Bronze. Bibl.: de Ridder, *Les Bronzes Antiques du Louvre*, p. 29, no. 148, pl. 16; Reinach, *Répertoire des Bronzes*, Vol. II, p. 740, 4. Date: Probably later than *Amphiaraos Krater*, above (Fig. 23).

#### Third Quarter 550-525 B. C.

c. 550-520 B.C. Neck Amphora. From Tarquinia. Krater. From Gela. By Sakonides. Bibl.: see Ch. IV, footnote 9-10.

550-530 B.C. Capital from a Stele. From Lamptrai. Now in the Nat. Mus., Athens. Bibl.: *BrBr*, pl. 66b; Conze, *Grabreliefs*, p. 9, pl. XI; Bulas, *Chronologia*, pp. 4 ff., 85, fig. 4; Dinsmoor, *AJA* XXVI, 1922, pp. 261 ff., fig. 2. Date: The gait is perhaps the only safe clue to the date, on the basis of which it falls

between the *François Vase*, above (Fig. 24), and the *Siphnian Frieze*, below (Figs. 25-27). The play of the pasterns is not yet understood, although the gait is not fortuitous, and is at the same time more sophisticated than on vases of about the same time. See *Exekias Amphora*, below, and those following after 540 B. C.

c. 540 B.C. \**Exekias Amphora*. Ch. IV, Ex. II.

*Neck Amphora*. In Met. Mus., N. Y. By *Exekias*.  
Bibl.: see Ch. IV, footnote 6.

*Amphora*. From Vulci. In the Louvre. By *Exekias*.  
Bibl.: see Ch. IV, footnote 5.

*Amphora*. From Orvieto. In Berlin. By *Exekias*.  
Bibl.: see Ch. IV, footnote 4.

*Bronze Volute Krater*. From necropolis of Trebenischte, north of Lake Ochrida. Horses on rim. Bronze. Bibl.: Picard, *La Sculpture, Période Archaique*, p. 471, fig. 140; Neugebauer, *Forschungen und Fortschritte*, VII, No. 14, 1931, pp. 193 ff. Date: Picard claims it resembles a horseman from Dodona in Nat. Mus., Athens, cf. Zervos, *L'Art en Grèce*, no. 75, and the winged horses on Corinthian coins, and so dates it at the end of the sixth century. Filow, *Die archaische Nekropole von Trebenischte am Ochrida* (cf. p. 45) also gives this date. But this is quite impossible. The horses are not so developed as those on the *Siphnian Frieze*, below (Figs. 25-27), while the movement of the horses, typically Oriental, was seen as far back as on the *Macmillan Aryballos*, above (Fig. 18).

*Krater*. From Gela. In Fogg Museum, Cambridge, Mass. Bibl.: see Ch. IV, footnote 10.

*Krater*. In Athens. By Sakonides. Bibl.: see Ch. IV, footnote 7.

*Kylix*. In Taranto. By Sakonides. Bibl.: *ibid*.

*Metope, Temple C, Selinus*. Now in Palermo. Marble. Bibl.: *University Prints* A 48; *BrBr*, p. 287; Picard, *La Sculpture: Période Archaique*, p. 523, fig. 174; Benndorf, *Die Metopen von Selinunt*, pl. III; Gäbler, *JdI* XL, 1925, pp. 1-8; Studniczka, *JdI* XLI, 1926, pp. 184-190; Lawrence, *Classical Sculpture*, p. 145; Langlotz, *Zur Zeitbestimmung*, p. 39; Deonna, *Dédale*, Vol. II, p. 147, note for a good bibliography.

Date: The date has been disputed. Anderson, Spiers, and Dinsmoor, *Architecture* (p. 79 f.), date the building c. 570 B.C., also noting that this particular metope is sunk to twice the depth of the others. Langlotz and Studniczka both date the metope 520 B.C., Picard at the end of the 6th century, and Lawrence dates it 500 B.C. All these dates seem a little late, when we consider that this metope is much less developed than the east side of the *Siphnian Frieze*, below; see Ch. IV, Ex. V (Fig. 26) for east side. Dinsmoor, *verbally*, and at a meeting of the Archaeological Institute of America in New York, in 1935, suggested that the date of the building was c. 540 B.C., thus confirming the date predicated by this metope.

**Frontal Chariot Group.** Fragments. In Akropolis Mus., Athens. Hymettan marble. Bibl.: Dickins, *Catalogue*, no. 575, forequarters, no members; no. 576, no head or members, only part of the breast; no. 578, head turned over right shoulder, worked only on left side; no. 579 fragment of a head and neck; no. 580, head. Payne, *Archaic Marble Sculpture*, pl. 16; von Schlözer, *RM* XVII, 1912, p. 175; Pfuhl, *AM* XXVIII, 1923, pp. 158, 159; Heberdey, *Altattische Porosskulptur*, pp. 220, 221; Buschor, *AM* LII, 1927, p. 212; *FR* III, p. 216; Schrader, *Die archaischen Marmorbildwerke*, pp. 243-248, dates it before middle of the VIth century. Date: Compares with the *Metope from Temple C, Selinus*, above, and is of about contemporary date. The frontal position is a most unnatural one from which to see a horse. The character of the animal is grasped better when seen in profile. The vase painted by Sakonides, same motif, 550-520 B.C. (Rumpf, *Sakonides*, p. 21) also, on a neck amphora from Tarquinia (Rumpf, *op. cit.*, no. 66, p. 15, pl. 9 c, d) and on a krater from Gela (Rumpf, *op. cit.*, no. 94). (For many examples of vases with frontal horses, see p. 51, footnote 10, Ch. IV). Compare the working of the breast muscles with the east side of *Siphnian Frieze*, below, Ch. IV, Ex. V (Fig. 26).

530-525 B.C. \*Siphnian Frieze. Ch. IV, Exs. III-V (Figs. 25-27)

Kylix. In bilingual technique. By Epiktetos. In Brit. Mus. Bibl.: see Ch. IV, footnotes 11-12.

- c. 530-520 B.C. Plate. In Brit. Mus. By Epiktetos. Bibl.: See Ch. IV, footnote 13.

Last Quarter 525-500 B. C.

- c. 525-500 B.C. Fragmentary Horse. From Kerameikos. In Kerameikos Museum in August 1939. Unpublished (?). Length 1.01 m. Point of shoulder to top of "withers" 0.470 m., top of shoulder to haunch 0.460 m., back to inferior limit of abdomen 0.36 m. Members missing. Head missing. Left side partly sheared off. Perhaps contemporary with *Siphnian Frieze* (Figs. 25-27), or slightly later. Note heavily rounded buttocks, breast muscles.

Lyseas Stele. From Attica. In Nat. Mus., Athens. Pentelic marble. Bibl.: Conze, *Grabreliefs*, I, pp. 3 ff., pl. I; Löscheke, *AM* IV, 1879, pp. 36 ff., pls. I, II; Milchhöfer, *AM* V, 1880, pp. 165, 173, 178, pl. VI; Gardner, *JHS* V, 1884, p. 123; Rodenwaldt, *AntDenk* III, pls. 32-33; Swindler, *Ancient Painting*, pp. 151-153, 154, fig. 241 b; Bulas, *Chronologja*, pp. 46 ff., 88, 97, fig. 28. Horse is in a most unusual position, the flying gallop. This gait is rarely seen on Attic ware of either black or red figure technique. It is commoner on Corinthian ware.

Quadriga Group. From Cyzicus. In the Broussa Museum. Marble. Bibl.: Picard, *La Sculpture: Période Archaïque*, p. 530, fig. 176; Mendel,  *BCH XXXIII*, 1909, pp. 249 ff.; *Cat. des Sculptures du Musée de Brousse*, p. 1 ff., pl. I, fig. 2. Date: Is contemporary with, or slightly later than *Siphnian Frieze*. Cf. Ch. IV, Ex. V (Fig. 26).

- 520-510 B.C. Pelike. From Caere. In Berlin. By the Kleophrades Painter (Epiktetos). Bibl.: see Chapter IV, footnote 15 for references.

Statue Base. From Athens. In Nat. Mus., Athens. Bibl.: Papaspiridi, *Guide du Musée National*, 1927, pp. 40, 41, no. 3477; Della Seta, *Dedalo* III, 1922-1923, pp. 409 ff.; *AA*, 1922, p. 56, Beilage IV; Richter, *Animals*, p. 16, fig. 56, dates it 510-500 B. C. Date: Compare with south and west side of *Siphnian Frieze* (Fig. 25), but it is a little more developed, hence later. But not quite so late as Nos. 700 and 697, below (Figs. 28-30). May thus be dated about 520-510 B. C.



**Grazing Horse.** From Cyprus. In Met. Mus., N.Y. Relief on a limestone sarcophagus. Bibl.: Myres, *Cesnola Collection*, no. 1364; Richter, *Animals*, p. 16, fig. 55. Date: This is about contemporary with the *Statue Base* immediately above, 520-510 B.C. Professor Bieber, on the basis of a comparison with a vase by Makron thinks it cannot possibly be before 500 B.C.

510-500 B.C. \*Nos. 700 and 697, Akropolis Museum. Ch. IV, Exs. VI and VII (Figs. 28-30).

**Fragmentary Horse and Rider.** From the Kerameikos, Athens. Pentelic marble. Bibl.: Kübler, *AA*, 1933, "Ausgrabungen im Kerameikos," pp. 262 ff., figs. 18, 19. He dates it, p. 282, in the thirties of the 6th century. Date: It is comparable to Nos. 700 and 697, above (Figs. 28-30), not of as good workmanship, but probably from the same decade, 510-500 B.C.

**Forepart of a Horse.** From Akropolis. In Akropolis Museum, no. 606. Island marble. Bibl.: Dickens, *Catalogue*, no. 606, pp. 138 ff.; Von Lücken, *AM* XLIV, 1919, p. 105; *Fouilles de Delphes* IV, pp. 3, 69, no. 2; Poulsen, *Delphic Studies*, p. 64; Schrader, *Auswahl archaischer Marmorskulpturen*, p. 51, fig. 53; Beazley, *CVA Oxford*, I, 2; Richter, *Animals*, p. 16, fig. 57; Payne, *Archaic Marble Sculpture*, pl. 134 nos. 2, 3, pl. 135, no. 3; Schrader, *Die archaischen Marmorbildwerke*, pp. 225 ff., no. 313, pls. 138, 139. Date: It is contemporary with Nos. 700 and 697, above (Figs. 28-30).

In reconstructing the Rampin head on the body of Akropolis No. 590, Payne, *Archaic Marble Sculpture*, pp. 6 ff., also considers the muzzle of a horse, Akropolis No. 565, below, as part of the same group. He believes, *ibid.*, p. 8, n. 7, that the neck of the horse is in the same scale as the muzzle No. 565, and furthermore, that on the right side of the muzzle, the neck, and body there is a broad grey streak in the marble (not to be seen in Payne's plates). He then dates the whole group before 550 B.C. This is quite an impossible date, at least for the muzzle which may not actually belong with the group in the first place. For, not enough of the neck is extant,

and nothing remains of the forehead, mandible, and cheeks to warrant placing this muzzle at the end of so great a gap in actual material.

**Fragmentary Head.** From Akropolis. In Akropolis Museum. No. 565. Bibl.: Payne, *Archaic Marble Sculpture*, pl. 11 c, no. 2. He believes it belongs to No. 590, his pl. 133, nos. 3, 4. Date: The manner of showing creases by means of incisions is reminiscent of No. 700, above (Figs. 28, 29), where this method is used at the corners of the mouth and throat. Furthermore, the nostril is quite advanced, and except for the incisions, very much like that on No. 697, above (Figs. 28, 30). Hence, this muzzle cannot be before 550 B. C., as Payne believes.

**Kylix.** From Orvieto. In Met. Mus., N. Y. By the Painter of Berlin 2268. Bibl.: see Ch. IV, footnote 16.

**Kylix.** From Vulci. In Brit. Mus. By the Panaitios Master. Bibl.: see Ch. IV, footnote 22.

**Kylix.** Leagros Kalos. From Vulci. By Euphronios. In Munich. Bibl.: see Ch. IV, footnote 23.

**Stele.** Lower portion only. Found in Rome. Probably of Attic workmanship. Now in Barracco Collection, Rome. Bibl.: Barracco and Helbig, *La Collezione Barracco*, pl. XXIII; Bulas, *Chronologia*, pp. 44 ff., 85 ff., fig. 24. Date: Helbig and Barracco compare it with the *Lyseus Stele*, above. They believe it to be at the end of the 6th and beginning of the 5th centuries. Probably correct. Compares with Nos. 700 and 697, above (Figs. 28-30), and is possibly not after 500 B. C.

#### FIFTH CENTURY

##### First Quarter 500-475 B. C.

500-490 B. C. \*Bronze Horse in MMA. Ch. IV, Ex. VIII (Fig. 31). It might be as late as 485 B. C.

500-490, perhaps to 480 B. C. **Krater.** From Etruria. In the Louvre. By the Kleophrades Painter. Bibl.: see Ch. IV, footnote 19.

**Kylix.** In Akropolis Museum, Athens and in British Museum. By the Kleophrades Painter. Bibl.: see Ch. IV, footnote 20.

- 490-480 B.C. **Kylix.** Erothemis Kalos. From Vulci. In the Louvre. By Onesimos. Bibl.: see Ch. IV, footnote 24.
- c. 485 B.C. **Cottenham Relief.** Probably from Attica. In Cottenham, England. Marble. Bibl.: Picard, *La Sculpture Antique* I, p. 385, fig. 105. Date: Picard dates it 485 B.C. Probably correct. It is very near the *Demarateion Dekadrachm*, below (Fig. 32), and not so well developed as the *Olympia Horses*, below (Figs. 33-35). The decorative treatment of the mane is to be seen on Nos. 700 and 697, above (Figs. 28-30). It is closer to the *Bronze Horse* in MMA above (Fig. 31).
- c. 485-478 B.C. **Tetradrachm.** Silver. Syracuse. Quadriga. Bibl.: Hill, *Monnaies*, p. 55, pl. XLIX, no. 1.
- 479-478 B.C. **\*Demarateion Dekadrachm**, Syracuse. Ch. IV, Ex. IX (Fig. 32).

#### THE TRANSITIONAL AND CLASSICAL PERIODS, 480-400 B. C.

Traces of archaism still persist on the Olympia horses (Figs. 33-35). The head is blocked out in a few simple planes with sharp lines of demarcation, while the trunk is slender as in the previous period. The head, however, is well shaped, the supraorbit subtly rendered, the nostril almost realistic, and the skin textures indicated in some instances. The xiphoid vein is decorative.

By the time of the Parthenon frieze and pediment (Figs. 38-46), the eye is completely understood. The attachment of the head is naturalistic through the inclusion of the atlas bone and the defining of the parotoid groove. The lower jaw is invariably recessive. The trunk is in correct proportion, but not sufficiently deep in the anterior portion. The carpus and hock joints are thoroughly understood, for the displacement of the bones is quite clearly revealed in many instances. A young horse, quite different from the mature animals elsewhere on the frieze, appears (Fig. 43).

The movement of the horse is no longer a problem for the Parthenon sculptor who clearly shows that he understands the various gaits, and, further, does not hesitate to display them. The movement of the frieze as a whole has a living rhythmical quality.

With the Bassae frieze (Figs. 47-48), the lower jaw tends to become less recessive, the nostril more realistic, and the trunk deeper in the anterior portion. The decorative xiphoid vein is finally abandoned. Equally as daring as the Parthenon sculptor of the filly (Fig. 43), is the man who rendered a dying horse on the Bassae frieze (Fig. 48).

By the end of the century the action of the body is no longer a problem for the Greek artist. The changing shape of the neck muscles when the animal is in motion is well understood. The varying positions of the pasterns as they snap back as the members approach or leave the ground is very subtly done.

**c. 480-470 B.C. Kylix.** In Hamburg. By the Penthesilea Master. Bibl.: see Ch. IV, footnote 27. For other horses by the same painter see Diepolder, *Penthesilea-Maler*, pls. 3, 7, 9, 13, 21, 24, 25.

**Kylix.** In the Louvre. By the Penthesilea Master. Bibl.: see Ch. IV, footnote 28.

**Kylix.** In Berlin, 2282. By Penthesilea Master. Bibl.: see Ch. IV, footnote 29.

#### Second Quarter 475-450 B.C.

**468-457 B.C. \*Olympia Horses.** From east pediment. Ch. V, Exs. I and II (Figs. 33-35).

The two items immediately below are very interesting from the point of view of breed. The provenance of both monuments is in Asia Minor. The horses are of the so-called "Asiatic" type, as seen at Olympia (Figs. 33-35). In the case of the *Frieze from a Tomb at Xanthos* (Fig. 36), the "European" type appears side by side with the "Asiatic."

**470-455 B.C. Satrap Sarcophagus.** From Sidon. In Constantinople. Marble. Bibl.: Mendel, *Catalogue des Sculptures: Musées Impériaux Ottomans* I, no. 9; Hamdy Bey and Reinach, *Une Nécropole royale à Sidon*, pp. 179 ff.; Lawrence, *Classical Sculpture*, p. 78, pl. 42. Date: Contemporary with *Olympia Horses*, above (Figs. 33-35).

**Frieze from a Tomb at Xanthos** (Fig. 36). In Brit. Mus. White limestone. Bibl.: Smith, *Catalogue I*, no. 86, 2-4, pp. 49-51; Pryce, *Catalogue I*, pp. 141 ff.,

pl. XXX, no. B 312; Benndorf, *Reisen in Lykien und Karien*, I, p. 86; Wolters, *JdI* I, 1886, p. 84; Fellows, *Lycia*, pls. facing pp. 173, 177; Richter, *Animals*, p. 16, fig. 64. Date: Smith dates it after 545 B. C., the Persian conquest of Xanthos. Richter believes it is about 470 B. C. However, it seems to be contemporary with the *Olympia Horses*, above (Figs. 33-35), roughly in the decade 465-455 B. C., with a little leeway toward the *post quem* date, up to about 470 B. C.

c. 466-455 B.C. Tetradrachm. Silver. From Selinus. Quadriga. Bibl.: Hill, *Monnaies*, p. 55, pl. XLIX, no. 3.

The discussion concerning the *Bronze Horse*, immediately below (Fig. 37), is a good example of how the method of dating may be applied. The elements comprising the sum total of the anatomy, proportion, and movement are compared with the same details on two definitely dated monuments. The comparison points to the fact that the *Bronze Horse* belongs between the two definitely dated *termini*, that is, the two definitely dated monuments analysed in Chapter V.

455-445 B.C. *Bronze Horse* (Fig. 37). Excavated by the Germans at Olympia in 1939. In Nat. Mus., Athens (?). Bibl.: Kunze and Schleif, "III. Bericht über die Ausgrabungen in Olympia," *JdI* LVI, 1941, Suppl. pp. 133-143, pls. 59-64. Solid casting. They date it between 480 and 460 B. C., preferably in 472 B. C., because this is an Olympic year. In *AJA* XLVI, 1942, pp. 484-487, fig. 3, Mrs. Blegen also dates it about 472 B. C. and assigns it to the Argive School of Ageladas. Date: At first glance it looks contemporary with *Olympia Horses*, above (Figs. 33-35). But the head is more developed anatomically. Nostril very realistic. Eye prominent. Supraorbit as subtle as on *Parthenon Frieze*, below (Figs. 38-45). Ear very well set, realistically thrown back as horse moves forward. Transitions between planes not so sharply marked as on *Olympia Horses*, above. Lower jaw is recessive, reminiscent of *Parthenon Frieze*, below. Trunk long and slender, from top of shoulder to haunch about one head, less from back to inferior limit of abdomen. Neck is rather short. Croup too long in relation to back and loins. When head is used

as an absolute module in measuring the animal, it appears to be a little long. For, curiously enough, the distance from the xiphoid region to just above the fetlock is one head, while from the stifle to the hock and the hock to the ground it is well under a head. The anterior member seems longer than the posterior, a condition characteristic of the *Parthenon Frieze*, below. The members are sufficiently worked for the salient features to stand out. The outline of the shoulder is seen, the triceps are correctly worked, the carpus and hock, including cord and tuberosity of the latter, are well understood. The rendering of the extremities of the members is not very good. The fetlock joint is not so distinct as on the *Parthenon Frieze*, below, the pasterns are too long, while the hoof itself seems too small.

This horse is not from the hand of a major craftsman, as the unevenness of workmanship and delineation of the anatomy seem to point. Nevertheless, it can be safely placed in the decade before the *Parthenon Frieze*, below, with a *terminus ante quem* of 445 B. C., and a *post quem* date of 455 B. C., or just after the *Olympia Horses*, above.

### Third Quarter 450-425 B. C.

450-440 B.C. Relief. From Aegina. In Nat. Mus., Athens. Pentelic marble. Members and head missing. Bibl.: Svoronos, *Athener Nat. Mus.* II, p. 380, no. 82, Inv. no. 1385, pl. 21. Date: Svoronos dates it in the second half of the 5th century. It lies between the *Olympia Horses*, above (Figs. 33-35), and the *Parthenon Frieze*, below (Figs. 38-45), but somewhat nearer to the latter.

442-438 B.C. \*Parthenon Frieze. Ch. V, Exs. III-XI (Figs. 38-45).

438-432 B.C. \*Parthenon Pediments. Selene's and Helios' horses. Ch. V, Ex. XII (Fig. 46).

Fragment of a Horseman. In Vatican, Rome. Marble. Bibl.: Lawrence, *Classical Sculpture*, p. 213, pl. 60; *University Prints*, A 182. Date: Compare the head, fragment only, with that of *Selene's Horse*, above (Fig. 46). It is either contemporary or soon after, but definitely before 425 B. C.

Talos Vase. From Ruvo. Bibl.: *FR* I, pls. 38, 39; Swindler, *Ancient Painting*, p. 227, fig. 376.

- 430-420 B.C. \*Bassae Frieze. Ch. V, Exs. XIII, XIV (Figs. 47-48).
- c. 427-424 B.C. \*Nike Temple Frieze. Ch. V, p. 8.
- c. 425 B.C. Statue Base. From Athens. In Nat. Mus., Athens. Marble. Bibl.: Svoronos, *Athener Nat. Mus.* II, pp. 465 ff., no. 161, Inv. no. 1464, figs. 219, 221, pl. LXVII. Date: Svoronos claims this may be the base of the monument Alcibiades set up to commemorate his competing in seven chariot races at Olympia, in which he won three prizes, in 420 or 416 B.C. He quotes Plutarch, *Alcibiades* 11; Curtius, *Griechische Geschichte* II, 5, p. 627; Hertberg, *Alkibiades*, p. 129; Benndorf, *Vasenbilder*, p. 15. He thus assigns the base a date falling within the last years of the 5th century. However, the method of anatomical rendering recalls the *Parthenon Frieze*, above (Figs. 38-45); but, on the other hand, it has many similarities to the *Bassae Frieze*, above (Figs. 47-48). It is not yet so developed as the *Kimon* and *Euainetos Dekadrachms*, below (Fig. 49). It is definitely 5th century in character, however—recessive lower jaw, long croup; the mane one of the types from the *Parthenon* frieze. See the summary at the end of Ch. V. It is c. 425 B.C., perhaps earlier, not after.

Last Quarter 425-400 B.C.

- c. 425 B.C. Head. From Tarentum. In Naples. Terra cotta, part of a figurine. Bibl.: Alda Levi, *Le Terrecofte Figurate del Museo di Napoli*, p. 35, no. 136, Inv. no. 140987, fig. 36; Helbig, *Bull. dell-Inst.*, 1881, p. 199. Date: Alda Levi places it in the last decade of the 5th century. It is very close to the *Bassae Frieze*, above (Figs. 47-48), about 425 B.C., perhaps later.
- 425-413 B.C. Tetradrachm. Silver. By Euainetos. From Syracuse. Quadriga. Bibl.: Hill, *Monnaies*, p. 55, pl. L no. 1; Gallatin, *Syracusan Dekadrachms of the Euainetos Type*, pls. X-XII.
- 420-410 B.C. Stele of a Warrior. From Athens. In Villa Albani, Rome. Marble. Bibl.: Conze, *Grabreliefs*, no. 1153, pl. 247; Diepolder, *Grabreliefs*, p. 16, pl. 9; see p. 97, footnote 29, Ch. VI, above; Schrader, *Phidias*, p. 286. Date: Schrader connects it with the *Parthenon*. It is well after *Selene's Horse*, above (Fig. 46), perhaps between the *Bassae Frieze*, above (Figs. 47-48), and the *Kimon* and *Euainetos Dekadrachms*,



below (Fig. 49). Diepolder, on a comparison with the Orpheus relief, says it belongs in the twenties of the 5th century.

After 413 B.C. \*Syracusan Dekadrachms of Kimon and Euainetos Types. Ch. V, Ex. XV (Fig. 49).

c. 413-406 B.C. Dekadrachm. Silver. From Agrigentum. Quadriga. Bibl.: Hill, *Monnaies*, p. 56, pl. LI no. 2; Gallatin, *l. c.* Tetradrachm. Silver. From Agrigentum. Bibl.: Hill, *Monnaies*, p. 56, pl. LII no. 2; Gallatin, *l. c.*

c. 413-405 B.C. Tetradrachm. Silver. From Gela. Quadriga. Bibl.: Hill, *Monnaies*, p. 55, pl. L no. 2; Gallatin, *l. c.*

c. 413-404 B.C. Tetradrachm. Silver. From Catania. Quadriga. Bibl.: Hill, *Monnaies*, p. 55, pl. L no. 3; Gallatin, *l. c.*

410-400 B.C. Lycian Sarcophagus. From Sidon. In Constantinople. Bibl.: Mendel, *Catalogue I*, pp. 158 ff., no. 63 (369), figs. on pp. 161 and 164; Hamdy Bey and Reinach, *Une nécropole royale*, pp. 10-11, 30-38, fig. 13; Reinach, *GBA I*, 1892, p. 101, fig. on p. 97; Noack, *AM XVIII*, 1893, p. 331 note; *JdI IX*, 1894, pp. 211, 214, 224, 229 ff.; *RA*, 1905, p. 34; Winter, *AA*, 1894, p. 10, fig. 4; Winter, *Kunstgeschichte in Bildern I* pl. 54, figs. 2-6; *University Prints A* 384. Date: Mendel says it is under Phidian influence and dates it 400 B. C. It does seem to be after the *Kimon and Euainetos Dekadrachms*, above (Fig. 49).

Pelops and Hippodameia Vase, Meidias Painter (?). In Arezzo. Bibl.: Swindler, *Ancient Painting*, pp. 188-189, 335-336, fig. 342; Hahland, *Vasen um Meidias*, pl. 8a; *FR.*, pl. 67; Beazley, *Attic Red-Figure Vase-Painters*, p. 793, says that it is in the "Manner of the Dinos Painter."

Rape of the Daughters of Leukippos Vase. By Meidias Painter. In Brit. Mus. Bibl.: Swindler, *Ancient Painting*, pp. 186, 206, fig. 344; *FR.*, pls. 8-9; Beazley, *Attic Red-Figure Vase-Painters*, p. 831.

c. 408-407 B.C. Erechtheum Frieze. From Akropolis. In Akropolis Mus., Athens. Pentelic marble. In very fragmentary condition, impossible to analyse. Horses as follows: Casson, *Catalogue*, p. 186, no. 1133; p. 193, no. 1235; p. 193, no. 1236; and nos. 1280 and 1282.

Turn of the Century 410-390 B. C.

410-390 B.C. \*Nereid Monument Frieze. Ch. VI, Ex. 1 (Fig. 50).

It is possible to date the two monuments immediately below a little more closely than heretofore. In the case of the *Doryphoros and Horse*, the proportions are definitely fifth century in character. The later muscularity of the shoulder which begins to appear on the *Epidauros Sculptures*, below (Figs. 53-54), is absent here. The fourth century date assigned this monument must therefore be altered.

410-390 B.C. Horse with a Rider Alighting. From a pediment of a temple at Lokroi. In Museo Nazionale, Naples. Parian Marble (?). Bibl.: Petersen, *RM* V, 1890, pp. 201 ff.; Petersen, *AntDenk* I, 1891, pl. 52; Richter, *Animals*, p. 17, fig. 68. Date: Richter dates it in the second half of the 5th century. It is probably from the turn of the century, and fits between the *Kimon* and *Euainetos Dekadrachms*, above (Fig. 49), and the *Devileos Stele*, below (Fig. 51). The motif is a very interesting one. That of a rider sliding off his horse as the animal comes to a quick halt, rearing up. Xenophon, in his treatise, "On Horsemanship," see also Chap. I, above, urges that men learn how to mount and dismount quickly, and to practice this manoeuvre. This motif appears on some coins from Himera (Gardner, *Types of Greek Coins*, pl. II no. 38) and on some others from Celenderis (*ibid.*, pl. IV no. 26).

*Doryphoros and Horse*. From Argos. In Nat. Mus., Athens. Inv. no. 3153. Marble. Bibl.: *BrBr*, pl. 279; *AM* III, 1878, pl. XIII; Richter, *Sculpture*, p. 245, fig. 649. Measurements taken in August 1939: Head 0.10 m.; neck 0.11 m.; point of shoulder to top of withers 0.10 m.; top of shoulder to haunch 0.12 m.; back to inferior limit of abdomen 0.09 m.; xiphoid region to top of fetlock 0.12 m.; stifle to hock 0.12 m.; hock to ground 0.12 m.; height at withers and croup 0.255 m.; length 0.280 m. Date: Miss Richter says it is of 4th century date. Note little muscular detail in shoulder, buttock, and thigh, longish trunk, very long anterior member. Proportions really 5th century. Is after *Kimon* and *Euainetos Dekadrachms*, above (Fig. 49).

## FOURTH CENTURY

The Dexileos Stele, below (Fig. 51), is the first landmark of the fourth century, for the Nereid Monument, above (Fig. 50), cannot be dated on the basis of the rendering of the horses, but may possibly be from the turn of the century, perhaps 410-390 B. C. The Dexileos Stele reveals the influence of the Parthenon sculptures (Figs. 38-46), but many details point to a definitely later date, which is certainly known to be 394 B. C. The fetlock joint reveals the sesamoid bone posteriorly. The xiphoid vein is not decorative. The mane gives the impression of actual hair. The eye is better than in the fifth century, while the transitions of the planes between the brow, the temples, and the supraorbit are delicate and very gradual.

A further crystallisation of fourth century characteristics is evident in the Sculptures from Epidauros (Figs. 53-54). An excessive muscularity begins to appear. The femoral biceps and the semi-tendinosus of the thigh and buttock are sharply bunched to give a dramatic impression of power.

By the middle of the century the spirit intimated earlier finds further expression on the Mausoleum Sculptures (Figs. 55-56). The dramatic use of the anatomy is extended. The artist now attempts to give the impression of a live horse, and goes so far as to pervert the normal anatomical arrangements in order to accomplish this end.

This overemphasis of dramatic action continues even in the case of such minor works as the Barracco and Medinaceli reliefs, and on the Alexander Sarcophagus (Fig. 58). This spirit of dramaturgy is finally crystallised on the latter monument, where a dying horse is shown. Here, however, it is quite different from that first seen on the Bassae Frieze (Fig. 48) in the preceding century.

**First Quarter 400-375 B. C.**

**c. 400-394 B.C.** Base. Three sides have the same scene. From Athens. Excavated in Kerameikos (?). Marble. Bibl.: Karo, *A.A.*, 1931, pp. 218 ff., figs. 1-3; *Illustrated London*

*News*, 27 VI 1931, p. 1098. Same motif as on *Dexileos Stele*, below (Fig. 51), except that rider is clothed and wears a wide brimmed hat. Is contemporary with it.

**Votive Relief.** From Cumae. In Berlin. Marble. Bibl.: Blümel, *Katalog der griechischen Skulpturen des 5. und 4. Jahrh. v. Chr.* III, p. 76, no. K 111, pl. 86; Kekule von Stradonitz, *Griechische Skulptur* III, pp. 168-9, 193, fig. on p. 168; Rumpf, *RM XXXVIII/XXXIX*, 1923/1924, p. 464, Beilage 8; Von Salis, *Die Kunst der Griechen* I, p. 174; Rouse, *Greek Votive Offerings*, p. 23, fig. 5. Date: Compare the iconography of hand raised over poll with two reliefs in *MMA*, discussed below.

**Grave Stele.** From Attica. In Berlin. Pentelic marble. Bibl.: Blümel, *Katalog* III, p. 31, no. K 30, pl. 39; Conze, *Grabreliefs*, no. 1160, see Ch. VI, footnote 29, above; Rouse, *Greek Votive Offerings*, p. 35. Date: Contemporary with *Dexileos Stele*, below (Fig. 51).

394 B.C. \**Dexileos Stele*. Ch. VI, Ex. II (Fig. 51).

400-390 B.C. *Dekadrachm*. Silver. From Syracuse.. Quadriga. Bibl.: Hill, *Monnaies*, p. 56, pl. LII no. 1.

The Votive Relief, below, formerly considered at the end of the fifth century, may now be more closely dated. It is comparable to the Kimon and Euainetos Dekadrachms, above (Fig. 49), on the one hand, and to the Echelos Basile relief (Fig. 52) on the other. Its date is given here as c. 390 B. C. because of the similarity of the proportional and anatomical detail with the *Dexileos Stele*, above (Fig. 51).

c. 390 B.C. **Votive Relief.** From Oropos. In Berlin. Bibl.: *BrBr*, pl. 162; Blümel, *Katalog* III, no. K 80, pl. 69; Overbeck, *Bildwerke des thebanischen und troischen Sagenkreises*, p. 145, pl. 6, 6; Körte, *AM* III, 1878, p. 410, no. 193; Collignon, *BCH* VII, 1883, p. 458; Furtwängler, *Sammlung Saburoff*, pl. 26; Kavvadias, *Εφ.*, 1910, p. 254, fig. 2; Rouse, *Greek Votive Offerings*, p. 177; Curtius, *Die Antike* III, 1927, p. 185, fig. 13. Date: Blümel dates it in the 5th century. He says the type begins as far back as the black-figured vase style, quotes Pfuhl, *Malerei*, § 74, no. 280, and con-

tinues that it is also seen on the Siphnian frieze, *Fouilles de Delphes* IV, pls. 21-23, dating it thus at the end of the 5th century. Actually, this specific type is first seen on the *Kimon* and *Euainetos Dekadrachms*, above (Fig. 49), and again on the famous *Echelos-Basile Relief*, below (Fig. 52). It displays many of the qualities which characterize those monuments from the turn of the 5th to the 4th century.

- c. 390 B.C., \*Echelos Basile Relief (Fig. 52), Ch. VI, pp. 90 f., not later. footnotes 11, 12.

390-380 B.C. Stele of a Warrior. From Athens. In Museum of Fine Arts, Moscow. Marble. Bibl.: *Denkschriften der staatlichen Museum für schöne Kunst zu Moskau*, V, 1926, pls. 10, 11; Fröhner, *La Collection Tyszkiewicz*, pl. 46; Diepolder, *Grabreliefs*, pp. 37 ff., pl. 32. Date: Diepolder places it between 380-370 B.C. The head is rather crudely shaped, very thick lips, recessive lower jaw. Probably after *Devileos Stele*, above (Fig. 51), and before *Epidauros Sculptures*, below (Figs. 53-54).

Votive Relief. From Rhodes. In Berlin. Marble. Bibl.: Blümel *Katalog* III, p. 56, no. 280, pl. 68; Reinach, *Répertoire des Reliefs* II, p. 48, no. 1; Wrede, *AM* XLII, 1917, p. 180; Schröder, *AA*, 1919, p. 105, no. 25; Homolle, *RA* XI, 1920, p. 23. Date: Seems to fall within the same limits as *Stele of a Warrior*, immediately above.

- c. 380 B.C. \*Sculptures from Temple of Asklepios at Epidauros. Ch. VI, Exs. III-IV (Figs. 53-54).

#### Second Quarter 375-350 B. C.

- c. 375 B.C. Votive Relief. From Tanagra. In Nat. Mus., Athens, Pentelic Marble. Bibl.: Svoronos, *Athener Nat. Mus.* II, p. 330, no. 83, Inv. no. 1386, pl. LII. For a discussion of the iconography, man with hand over horse's poll, see *Plaque in MMA*, immediately below.

375-350 B.C. Plaque—Horseman with Hand over Poll. In *MMA*, N. Y. Bibl.: See Ch. VI, footnote 30. Date: Is after the *Epidauros Sculptures*, above (Figs. 53-54), and before *Mausoleum Sculptures*, below (Figs. 55-56). Iconography is discussed in connection with *Bryaxis Base*, pp. 96 f., Ch. VI, Ex. VII (Fig. 57). For similar motifs see *AM* III, 1878, p. 380, no. 143; Friedrichs-Wolters, *Bausteine*, no. 1076; Roscher, *Lexikon* I<sup>2</sup>,

pp. 2557, 2558, no. 4; Reinach, *Burlington Magazine* XLV, 1924, pp. 4 ff.; Johnson, *AJA* XXXVI, 1932, pp. 276 ff.; Richter, text to *BrBr*, pl. 729, who dates the plaque at the end of the fourth century. Cf. also Poulsen, *Æφ.*, 1937, p. 189, for the gesture.

**Hunter on Horseback.** In Barracco Collection, Rome. Pentelic marble. Horseman has his hand over horse's poll, as on *Plaque MMA*, immediately above. Bibl.: Helbig and Barracco, *La Collection Barracco*, pl. XLIX. Date: Better workmanship than *Plaque MMA*, above, probably contemporary.

- 370-360 B.C. Mourning Women Sarcophagus.** Funerary procession on lid. In Constantinople. Bibl.: *University Prints* A 385; Mendel, *Catalogue* I, pp. 48 ff., no. 10 (368), figs. on pp. 55, 57; Hamdy Bey and Reinach, *Une Nécropole royale*, pp. 6, 7, 25-29, 81, 238-271, 360-363, pls. IV-XI; Reinach, *Revue des Études Grecques* IV, 1891, p. 383; *GBA* I, 1892, p. 102, pl. on pp. 94 and 104; Petersen, *RM* VIII, 1893, pp. 62, 73, 100; Kekule von Stradonitz, *AA*, 1893, p. 77; *JdI* IX, 1894, pp. 211, 225, 233 ff., figs. 7, 9, 10; *RA* II, 1905, pp. 35 ff.; Winter, *Kunstgeschichte in Bildern* I, pl. 56, fig. 3. Date: Mendel, *op. cit.*, p. 70, dates it before 350 B.C. It is after the *Epidauros Sculptures*, above (Figs. 53-54), and before *Mausoleum Sculptures*, below (Figs. 55-56).

- c. 367-345 B.C. Tetradrachm.** Silver. From Morgantina in Sicily. Quadriga. Bibl.: Hill, *Monnaies*, p. 56, pl. LII no. 3.

In the case of the Amazon on Horseback, immediately below, the working of certain muscles precludes placing this monument in the pediment of the Temple of Asklepios at Epidauros. On the basis of the same evidence, it is possible to place it in the decade, or decade and a half perhaps, before the Mausoleum Sculptures, below.

- c. 360 B.C. Amazon on Horseback.** Found in Rome. In Mus. of Fine Arts, Boston. Pentelic marble. Bibl.: Caskey, *Handbook MFA*, Boston, 1911, pp. 89-92, no. 40; Reinach, *GBA*, 1909, pp. 195-200; Amelung, *Ausonia* III, 1909, p. 97, figs. 5, 6; Caskey, text to *BrBr*, pl. 674. Date: Amelung believed it to be from the same gable as the Amazon on Horseback from Epidauros,

Ch. VI, Ex. III (Fig. 53), and possibly by Timotheos. This is impossible as a comparison of the working of the sterno-humeralis muscles of the breast, the triceps, the modeling of the flank, and the muscles of the thigh and buttock reveals. However, the working of the muscles of the shoulder presage that seen on the Amazon from the *Mausoleum Frieze*, Ch. VI, Ex. VI (Fig. 56), where these muscles are done more boldly and are better understood.

- c. 359-336 B.C. Tetradrachm. Silver. Time of Philip II of Macedon. Jockey holding a palm over horse's poll. Bibl.: Hill, *Monnaies*, p. 54, pl. XLVIII, no. 4.
- 353-350 B.C., \*Mausoleum Sculptures. Ch. VI, Exs. V, VI (Figs. 55-56).  
not later.
- c. 350 B.C. \*Bryaxis Base. Ch. VI, Ex. VII (Fig. 57).

Third Quarter 350-325 B. C.

- 350-325 B.C. Votive Relief of Aleximachos. From Tanagra. In Berlin. Pentelic marble. Bibl.: Blümel, *Katalog III*, p. 70, no. K 112, pl. 87; Furtwängler, *Sammlung Saburoff*, p. 37, pl. 29; Rouse, *Greek Votive Offerings*, pp. 24-25; Reinach, *Répertoire des Reliefs II*, p. 471. Date: Blümel, *loc. cit.*, says it belongs in the second half of the 4th century. He compares it to a similar piece in Athens (Svoronos, *Athener Nat. Mus.* I, no. 1410, pl. 65). It is probably after the *Mausoleum Sculptures*, above (Figs. 55-56). Compare the shape of the head with that of the colossal horse from the quadriga group of the pyramid, Ch. VI, Ex. V. It is not yet like the *Alexander Sarcophagus*, below (Fig. 58).

Relief with Cavalry. In Ashmolean Mus., Oxford. Marble. Bibl.: Ashmole, text to *BrBr*, pl. 768; Chandler, *Marmora Oxoniensa* 149; Michaelis, *Ancient Marbles in Great Britain*, p. 560, no. 84; Reinach, *Répertoire des Reliefs II*, p. 525, l. Date: Ashmole, *loc. cit.*, dates it 320 B.C. Compare the open composition of the *Mausoleum Frieze*, above (Fig. 56). Delineation of the shoulder muscles and flank like the latter. Not quite like *Alexander Sarcophagus*, below (Fig. 58).

- 344-334 B.C. Didrachm. Silver. From Tarentum. Horseman with a spear. Bibl.: Hill, *Monnaies*, p. 55, pl. XLVIII, no. 5.



## Last Quarter 325-300 B. C.

325-300 B.C. \*Alexander Sarcophagus. Ch. VI, Ex. VIII (Fig. 58).

Amazon Sarcophagus. In *Kunsthistorisches Hofmuseum*, Vienna. Marble. Bibl.: *BrBr*, pl. 493. It may even be later than the *Alexander Sarcophagus*, above (Fig. 58).

## Turn of the Century 310-290 B. C., Beginning of the Hellenistic Style.

310-290 B.C. \*Metope. Found in Troy. From Temple of Athena.

In Berlin, Museum für Völkerkunde. Marble. Bibl.: *BrBr*, pl. 162. Date: Note the deep trunk, a 4th century characteristic. The overdramatic pose of the heads with open mouths and ears erect like dogs. Zschietzschmann, *Bericht über den VI. Internationalen Kongress für Archäologie, Berlin* (1940), pp. 426 ff., "Der Athenatempel von Ilion und seine Entstehungszeit," states that the building itself is not dated, but that it was probably built in the decade around 290 B. C.

The date of the Horses on the Façade of St. Mark's has been the subject of much controversy. Dates ranging from the classical to the Hellenistic and even the Roman period have been offered. An examination of the anatomy, proportion, and movement, however, clearly indicates that this monument must be placed at the turn from the fourth to the third century B. C. The two definitely dated monuments between which it belongs are more closely spaced than the range of the dates hitherto assigned.

310-290 B.C. Horses on Façade of St. Mark's, Venice. Said to have been brought from Chios to Constantinople in the 5th century A. D., and then to Venice in 1204. Of gilt copper. Bibl.: von Schlözer, *RM* XXVIII, 1913, pp. 129 ff., "Die Rosse von San Marco"; Richter, *Animals*, p. 17, fig. 70. Date: Gisela Richter thinks that the horses are of Roman execution, inspired perhaps by a Greek work of the second half of the 5th century. M. Bieber believes they may be Roman copies of 4th century originals, and agrees with Strong, *Roman Art* I, p. 146, fig. 169, who dates them in the Augustan period. However, the working of the shoulder muscles places them after the *Mausoleum Frieze*, above (Figs.

55-56). The proportions are similar to those of the colossal horse from the same monument. But the general workmanship is much more dramatic and developed. The *terminus ante quem* might be considered the frieze of the *Pergamon Altar*, below (Fig. 62), where this tendency reaches its widest extension. On the St. Mark's horses this dramatic effect is there only in part. The skin is very detailed, the texture on gaskin is different from that on the rest of the member around hock, inside face, flank, etc. This is not a 4th century characteristic. It therefore seems that this monument may be placed at the end of the 4th century, and at the beginning of the Hellenistic period.

Relief of a Rider (Fig. 59). Said to be from Rhodes. In Met. Mus., N. Y. Marble. Bibl.: see Ch. VI, footnote 30. For similar reliefs see *Plaque* in *MMA*, above. Also Ch. VI, footnotes 30-33, pp. 97 f., and *Bryaxis Base*, above (Fig. 57). Date: Richter, *Animals*, p. 18, fig. 79, dates it late 4th century. Note excessive working of bony and muscular structure of head, over-dramatic posture, horse is almost backing up. Later than *Alexander Sarcophagus*, above (Fig. 58). Proportions are almost like those of *Pergamon Altar*, below (Fig. 62).

#### THE HELLENISTIC PERIOD, THIRD TO FIRST CENTURY B. C.

Many fourth century characteristics no doubt continued in the third century, for in the second century certain fourth century traits still persist. The dying horse and the stretching, straining horse types continue. The Hellenistic manner of overemphasizing the muscularity and movement is definitely seen on the horses from the *Great Altar* at Pergamon (Fig. 62). This tendency goes so far that the figure is carved as if the skin were removed, revealing all the intricacies of the construction of the upper layer of muscles.

#### THIRD CENTURY

c. 300-250 B.C. \*Bronze Statuette of Alexander (Fig. 60). Ch. VII, pp. 102 f., note 1.

Wounded Horseman. From Gnathia in Southern Italy. In the Louvre. Terra cotta. Bibl.: Char-

bonneaux, *Les Terres Cuites Grecques*, p. 21, pl. 85, no. 96. Compare with the dying horse on the *Alexander Sarcophagus*, above (Fig. 58).

Comb. From Tumulus, South Russia. In Hermitage Museum, Leningrad. Bibl.: Lawrence, *Later Greek Sculpture*, p. 14, pl. 16 a; *Cambridge Ancient History* I (Plates), p. 262. Date: Gisela Richter, verbally, assigns a 5th century date. In 1930 she was in the Hermitage in Leningrad and the archaeologists there, who were working on the Corpus Tumulorum of South Russia, assigned a 5th century date to this comb on the basis of a new dating for the tombs. She agreed with them on stylistic grounds. The Russians' work has not been published yet. The motif is the same as on the *Alexander Sarcophagus* (Fig. 58), above, a dying horse. The date is given as c. 300 B. C. in *CAH* II, p. 203.

Middle 3rd Century B.C. Race Horse. Found in the Sea (Fig. 61). Very excellent workmanship. Bronze. Bibl.: Buschor, *Die Plastik der Griechen*, p. 70, fig. on p. 74. Date: Buschor places it between the Olympia pediments and the Parthenon frieze (Figs. 38-45). Note how the upper and lower jaw meet, how the head strains forward, how the neck is stretched out and not arched, how the neck is finely tapered. Furthermore, note how the muscles of the shoulder are all plainly visible, how the shoulder blade is seen working under the flesh. These features point to a date definitely after the *Alexander Sarcophagus*, above (Fig. 58), and before the *Pergamon Altar*, below (Fig. 62). In other words it falls roughly into the 3rd century, and is definitely Hellenistic with a minimum of 4th century traits left. Its rider is the Hellenistic boy, Buschor, fig. on p. 105.

Late 3rd Century B.C. Mounted Amazon. In the Villa Borghese, Rome. Bibl.: *JdI* II, 1887, pl. VII; Lawrence, *Later Greek Sculpture*, p. 115; Arndt-Amelung, EA. 2779-2781; Schweitzer, *JdI* LI, 1936, 158 ff. Fig. 4; cf. Figs. 1-3 from same monument. Date: Lawrence dates it c. 200 B. C. Schweitzer dates second half of second century and M. Bieber agrees with him. Probably in the last quarter of the 3rd century.

## SECOND CENTURY

- 200-150 B.C. Stele of Metrodoros. From Chios. In Berlin. Marble with painted decoration, partly incised outlines. Bibl.: *AM* XIII, 1888, pp. 195, 363, pl. III; Lawrence, *Later Greek Sculpture*, pp. 23, 115, pl. 42; Swindler, *Ancient Painting*, p. 349. Date: The inscription is probably of 2nd century date. The horses are very well drawn. Look almost 5th century. The technique of drawing, except for the sophisticated perspective, uses the formulae first seen as far back as the black-figured style of vase painting.
- 180-160 B.C. \*Frieze of the Great Altar, Pergamon. Ch. VII, Ex. I (Fig. 62).
- 168-167 B.C. \*Monument of Aemilius Paulus. Ch. VII, pp. 105 f., footnote 4.
- c. 150 B.C. \*Frieze of the Temple of Artemis Leukophryene, Magnesia on the Maeander. Ch. VII, Ex. II.
- Middle 2nd Century B.C. Frieze from the Theatre at Delphi. Bibl.: Krahmer, *JdI* XL, 1925, p. 196, fig. 8; Lawrence, *Later Greek Sculpture*, p. 115. Krahmer, *loc. cit.*, says it is contemporary with the *Magnesia Frieze*, above, dating the latter 129 B.C. Lawrence, *loc. cit.*, dates it c. 200 B.C. It seems, however, on the basis of the horses, to be contemporary with the *Aemilius Paulus* monuments, above.
- Late 2nd Century B.C. Standing Horse. From Pergamon. In Berlin. Marble. Bibl.: *Altertümer von Pergamon* VII<sup>2</sup>, p. 170, no. 152, Beiblatt 23. Date: Winter, *loc. cit.*, believes this piece as well as some others to be Pergamene in spirit. Note the overworked facial muscles, extremely short neck with wide base, overdone textural detail of skin on neck. Is probably after the *Great Altar*, above (Fig. 62).

## APPENDIX I

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### THE ANATOMY OF THE HORSE

For man's purpose, the horse is primarily a machine. The ancient Greeks also maintained this point of view. Xenophon's writings on cavalry and horsemanship reveal this tendency. The desirable qualities of the various breeds or races of horses were sought out by means of selective breeding.<sup>1</sup>

As time went on the Greek artist concerned himself more and more with giving as naturalistic a representation of nature, particularly of the human figure, as he could within the scope of his powers of observation, and within the limits of his technical ability. By the time of the building of the Parthenon on the Akropolis at Athens, the Greek artist had mastered the anatomy of the human figure. This was also the time when he at last came to understand the anatomy of the horse.<sup>2</sup>

A survey of the anatomy, more specifically, the exterior of the horse, is included here even though to do so is not altogether consistent with the purpose of this study. The following discussion is, therefore, no more than a brief statement of the anatomy of the horse from the artist's or art historian's point of view. Only the exterior features which are pertinent to this point of view are discussed. The method is that of A. Goubaux and G. Barrier, *The Exterior of the Horse*.<sup>3</sup> Since this book was designed for the veterinarian, much in the exposition of the anatomy below has been simplified and the emphasis shifted to comply with the requirements of an artistic anatomy. Such a book, and an excellent one, is by L. D. Luard, *The Horse, Its Action and Anatomy by an*

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<sup>1</sup> See Chapter I, *The Horse in the Greek World*, above, for a discussion of this subject.

<sup>2</sup> See Chapter V, *The Classical Period*, above, for analyses of the horses on the Parthenon frieze.

<sup>3</sup> English by S. J. J. Harger, Philadelphia, 1904.

*Artist.*<sup>4</sup> Thus the discussion below follows a combination of the methods of these two books.

The skeletal and muscular structures are discussed only in so far as they form the immediate anatomical base for the exterior. The method is to begin with the part or region externally and then proceed to an examination of the structures which underlie it. One can follow the exposition by utilizing the charts "Parts of the Horse" (Fig. 1), then "The Skeleton" (Fig. 2), and finally "Superficial Structures" (Fig. 3).

#### HEAD

1. *Forehead.* Its upper limit is the occipital protuberance and the poll. Its lower limit is the face. To each side are the ear, the temple, the supraorbit, and the eye. Very often the forelock falling forward conceals the forehead. A wide forehead is desirable as it indicates wide sinuses below. In young horses the forehead is very prominent.

2. *Face or Nose.* It is located on the anterior surface of the head and is limited by the forehead above, by the extremity of the nose below, and on each side by the eye, the cheek, and the nostril. Three muscles underlie it: the supermaxillo-labialis; the supernaso-labialis; and the inferior palpebral or lachrymalis. A wide nose is desirable as it indicates wide nasal passages, hence a more efficient respiratory system.

3. *Ear.* It is located on the upper extremity of the head at either side of the forehead and forelock, in front of the poll, and above the paratoid gland. The conchal scutiform cartilages form the anatomical base. To them are attached ten pairs of muscles. The skin of the ear should be fine, and only sparsely overgrown with fine hairs. The ears move freely in all directions to an angle of about forty-five degrees with the axis of the head.

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<sup>4</sup> London 1935. This work contains some very excellent anatomical drawings and a comprehensive glossary with cross-references to these drawings. See the Bibliography for other works on the same subject.

4. *Supraorbit.* It is an asymmetrical depression above the eye on the side of the forehead, above the cheek. It is filled with a mass of fatty tissue which is absorbed with age. Thus it is very hollow in old horses.

5. *Eye.* The eyes are situated on the lateral planes of the head above the cheeks and face, below the supraorbit, and on each side of the forehead. They protrude and are prominent above the surrounding surfaces. The axis of the eye makes approximately a forty-five degree angle with the axis of the head as seen in "plan" and in "side elevation."

6. *Cheek.* It is a plane surface limited in front by the eye and the face, behind by the interior maxillary bone, below by the lips, and above by the paratoid region. The skin on the cheeks should be fine and thin showing the blood vessels, nerves, and muscles below, primarily the masseter muscle which covers the major part of the surface.

7. *Nostrils.* They are the external openings of the nasal fossae. In solipeds they form the only entrance for air, as the length of the soft palate prevents breathing through the mouth. The nostrils are crescent shaped, and are distended proportionately with the amount of exertion. They are organs of facial expression.

8. *Mouth.* The mouth, like the nostrils, is an organ of facial expression. It consists of two lips, the upper of which is more mobile.

9. *Poll or Nape.* Its location is at the summit of the head. Its base is the nuchal ligament which is separated from the atlas bone by a synovial bursa (a lubricating device at joints). The region extends over as far as the side of the atlas, at the base of the transverse process, where are located the two principal blood vessels, the retrograde and the occipito-muscular arteries. The skin which covers this region is protected by the mane. The horse is very sensitive to contact with foreign bodies at this point, and will rear up or throw the head back when such contact occurs.

10. *Throat.* The larynx is lodged here; hence a wide



throat is desirable for the general efficiency of the respiratory system.

The length of the head has been generally accepted as a module of measurement for the horse. The reasonable justification of this has been the subject of much research and discussion, and has been proved correct on anatomical grounds. The length of the head is a very important factor in the motor efficiency of the horse. If the head is too long it throws the center of gravity too far forward, hindering the free action of the anterior members and thus diminishing the speed. A short head, besides being lighter, removes the center of gravity from close proximity to the anterior members, thus making for greater speed. However, in work horses the contrary has been considered more desirable, since pulling power, not speed, is the aim. The head should assume an angle of about forty-five degrees with the ground, since visibility is better in that position.

To be considered well attached the head should present a slight depression running from the poll past the transverse process of the atlas bone to the throat. This is known as the parotoid groove. It must be neither too deep nor too shallow, but sufficiently well marked to be seen. Except for the nose, the lips, and the masseter muscle, most of the bony structure of the skull should be clearly visible on the exterior, especially the zygomatic ridge to which the masseter muscle is attached. The zygomatic ridge is located on the side of the face below the eye, just above the mandible.

#### BODY

1. *Neck.* It is limited above by the parotoid region, poll, and throat, behind and below by the withers, shoulders, and breast. It does not move freely in all directions because of the deep entry of the ball of each vertebra into the socket of the adjoining vertebra. The skull is supported by the first cervical vertebra, the atlas. The flanges of the atlas are well developed and appear externally. The inferior side of the neck is

broader than the superior, making the neck triangular in section. The trachea, that is, the jugular gutter, is located inferiorly in the neck. The neck should not be too long, as that would overburden the forepart of the animal. When the neck is too short it impedes the easy displacement of the center of gravity during locomotion. However, in a work horse a short neck is not a defect.

2. *Withers*. The withers lie behind the crest of the neck between the shoulders. They are made up of the five or six thoracic vertebrae which follow the first. The spinous processes of the vertebrae offer attachment laterally for the trapezius, the rhomboideus, the splenius, the great and small complexi, the small anterior serrated, the ilio-spinalis, and the transverse spinous muscles. All these muscles are arranged in many superimposed layers and form the exterior shape of the withers. Whenever the chest is deep and the shoulders long and oblique, then the withers are well elevated and extended backward.

3. *Back*. It is located on the upper part of the trunk limited by the withers in front, behind by the loins, and laterally by the ribs. The twelve dorsal vertebrae and the superior extremities of the corresponding ribs form the skeletal base. These bones afford purchase to the many different muscles filling the costo-vertebral grooves; namely, the great dorsal, the small anterior and posterior serrated, the ilio-spinalis, the transverse spinous, and the intercostals.

4. *Loins*. They lie behind the back, in front of the croup, and are limited by the flanks on the sides. The six lumbar vertebrae form the skeletal base. The shorter the loins the better, since the lumbar vertebrae have no support laterally. Because of the resultant lessening of elasticity and mobility, short loins make for an efficient transmission of the propelling force of the posterior members. The loins should be attached to the back and the croup in a manner so as to make them indiscernible.

5. *Croup*. It lies on the median line of the upper surface of the body, and is bounded in front by the loins, behind by

the tail, and on each side by the thigh, and the superior part of the buttock. It forms the terminal portion of the trunk, and gives attachment to the posterior members. Its anatomical base consists of two coxae firmly united on the median line, and anteriorly by the two blades of the sacrum, which are immovable and are covered by a large mass of muscles, some of which extend as far down as the femur and the tibia. Its total length consists of the distance from the angle of the ilium, the haunch, to the ischiatic tuberosity, the point of the buttock. A wide croup is desirable because it indicates an amplitude of muscular volume where the main motive power of the animal is located.

6. *Breast or Pectoral Region.* It is located at the front end of the trunk, limited anteriorly by the lower border of the neck, posteriorly by the axillae and the interaxillary region, and on each side by the arm. Its skeletal base is the anterior extremity of the sternum to which are attached, that is, inserted, the sterno-hyoideus, the sterno-thyroideus, the sterno-maxillaris, and the sterno-humeralis muscles. The sternum is more or less prominent, depending on the development of these muscles. However, its exterior form is sharp, forming the prow, so to speak, of the boat-shaped thorax.

7. *Xiphoid Region.* It is on the underside of the trunk immediately behind the anterior members. The xiphoid cartilage is visible sometimes on the surface.

8. *Abdomen.* On the healthy horse it is elastic and yields to digital pressure without undue effort. The lower limit of the abdomen should describe a graceful curve from the sternum to the inguinal region.

9. *Costal Region—Ribs, Sides.* The anatomical base consists of the last twelve ribs which are covered by the great dorsal, the serratus magnus, and the great oblique muscles of the abdomen. The external and internal intercostals fill the spaces between the ribs. The ribs should describe a full curve, and be quite apart from each other. Their action can be observed externally.

10. *Tail*. It should begin high up on the croup. During movement the tail arches up; that is, it should, as it does in well bred horses.

#### ANTERIOR MEMBER

1. *Shoulder*. The osseus base is the scapula where the initial movement is made as the member advances. The more scapula play the better, for this makes a longer stride possible. The horse does not have a collar bone, hence the shoulder blades lie along the chest, and move back and forth. Since the chest is prow-shaped, the shoulder blade in moving back and forth brings the limb near the central line of movement. The spine of the shoulder blade where the mastoido-humeralis, the trapezius dorsalis, and the trapezius cervicalis find attachment, can be seen externally. On thin horses particularly, the outline of the scapula, especially at the top, can also be easily discerned. The direction of the shoulder is oblique.

2. *Arm*. It is slightly detached from the trunk, and lies between the shoulder blade and the forearm, beginning at the elbow. Its osseus base is the humerus. The longer the arm the better, for it then provides greater extension to the member in movement. The arm is not seen clearly on the surface except for the prominence called the "point of the shoulder," the tuberosity of the humerus at the scapulo-humeral articulation.

3. *Forearm*. Two bones form its anatomical base, the radius and the greater portion of the ulna. These bones are surrounded by muscles which continue in changed form down to the metacarpus, or metatarsus in the posterior member, where a similar phenomenon occurs, and finally to the phalanges. In relation to the cannon bone, the forearm should be longer for greater efficiency in movement.

4. *Chestnut*. A horny projection on the middle of the lower part of the forearm, on the inside. It is little developed in the better breeds of horses. It is probably a rudimentary hoof or nail of the interior digit, the thumb.

5. *Knee or Carpus Joint.* This joint corresponds to the wrist in man. It comprises the carpo-metacarpal bones. Anatomically the foot really begins here. It is constituted of nothing but ligament and bones, all of which are clearly seen externally.

#### POSTERIOR MEMBER

1. *Thigh and Buttock.* The anatomical basis consists of the femur and the various muscles coming from other regions, finding temporary attachment here before proceeding elsewhere, and finally ending in the leg and foot. This part forms almost a vertical plane below the croup, and blends into the surfaces of the leg and flank. When the horse is undernourished, the salient bone structures, such as the trochanter and the ischium, are visible. The femur swings forward angularly to begin the step, and reaches its limit of flexion just before the foot reaches the ground, thus insuring the fullest possible extension to the tibia. In the process of extension, the femur moves backwards, opening the coxo-femoral angle. The region is underlaid with tremendous muscles which displace the entire weight of the body, the play of which is clearly visible during movement.

2. *Stifle.* It consists of the femoro-patellar articulation. Its external outline presents two rounded protuberances, one above the other, the upper one being the greater. A cutaneous fold goes from the superior protuberance upward, and blends into the flank.

3. *Leg.* Two bones form the skeletal base, the tibia and the fibula. The latter is rudimentary. There are two groups of muscles in front, in back, and on the outside of the leg. Its interior face is subcutaneous. The upper portion of the tibial muscles are fleshy and full, but as they descend they terminate in tendons, long and short ones, which transmit the action to the cannon bone and the phalanges below. The lower part of the leg clearly reveals the tuberosity of the tibia at this point, as well as the hollow of the hock. The leg, measured from the bottom of the stifle to the fold of the

hock, should be as long as the forearm and longer than the cannon.

4. *Hock*. This joint is analogous to the knee on the anterior member. It is the tibio-tarso-metatarsal articulation, and supports the limb, forming the center of the chief movements of the members, which are spoke-like. The tarsus consists of six bones, sometimes seven, which are all attached to the adjoining bones by means of the capsular and funicular ligaments. These bones are separately discernible, as are those of the knee of the anterior member. The cord of the hock is very well defined externally too.

5. *Cannon and Tendons*. The cannon bone extends from the hock to the fetlock, and consists of the third metatarsal, or metacarpal in the anterior member, tendons of the motor muscles above, and a very strong ligament, the suspensory ligament of the fetlock. Two of the bones are rudimentary and no more than splints. Two principal movements comprise the total activity of the cannon, flexion and extension. The hairs on the posterior face of the cannon are always longer and coarser than on the other three faces. The cannon should be short, sturdy, and thin skinned, so that the bony quality of its structure is clear on the surface.

6. *Fetlock*. It lies between the cannon and the pastern, and includes the horny projection known as the ergot. Anatomically it comprises the metacarpo- or metatarso-phalangeal articulation, and is complemented by the sesamoid bones posteriorly. The ligament of the fetlock branches to the sesamoid bones. It is reinforced in front by the extensor tendons of the phalanges, and behind by the flexor tendons. The footlock is the tuft of hair around the ergot. During locomotion it is not uncommon for the ergot to touch the ground. The fetlock, and the pasterns too, are very elastic and virtually act as springs to take up the shock during locomotion.

7. *Pastern*. It lies between the fetlock and the coronet, and comprises the narrowest part of the first phalanx. Its general direction is oblique, and is the locus of two move-

ments, flexion and extension. There is a great deal of play in the pasterns. They serve to reduce the shock of the violent contact of the foot with the ground. In concert with the fetlock they act as springs, giving way, that is, overextend themselves, as the weight of the body comes down on the foot. They are thus overextended for the time being, but come together after the member has passed the vertical; and since the action of the members is spoke-like, they keep the body moving along at the same level. As the foot is lifted the pasterns flick back sharply, almost like automatic springs.

8. *Coronet*. It is a very small region lying between the pastern and the hoof or foot. It widens below forming a coronary band which is seen externally.

9. *Foot*. It comprises the third phalanx, and is completely covered by the horny tissue of the hoof.

#### EXTERNALLY VISIBLE BONE FORMS

1. Spine of the shoulder blade, scapula, and often the outline of the top of the shoulder.

2. Point of the shoulder. The scapulo-humeral articulation in which the tuberosity of the humerus is evident.

3. Elbow or olecranon.

4. Knee or carpus. On the inside of the forearm between the flexor and extensor muscles the skin is very thin and the bones which lie very near the surface can be clearly seen.

5. Haunch. The coxo-femoral articulation, or external angle of the ilium.

6. The trochanter of the femur is seen working under the flesh.

7. Stifle. The big head of the knee-cap, the patella.

8. Top of the tibia can be seen on the inside of the leg.

9. Hock, cannon, pasterns, coronet, and foot. Are all clearly seen including their osseous and ligamentous structure.

10. Much of the skull, especially the zygomatic ridge on the side of the face, is clear on the surface.



## PROPORTIONS

A well proportioned horse is a more efficient horse as well as a beautiful one. The head, which has come to be accepted as the module for measurement, is normally equivalent to twice the distance from the superior face of the forehead to the bottom of the cheek, the mandible, that is, the inferior maxillary bone. This is important to keep in mind as the heads of many sculptured horses are broken off. Even with the extremity of the head missing, it is still possible to determine the module.

The proportions generally accepted are as follows (Fig. 4) :

1. The head is to be measured from the poll to the muzzle, and it equals
2. The length of the neck from the wing, that is, the transverse process of the atlas bone to the base of the neck.
3. The distance from the point of the shoulder to the top of the withers.
4. The distance from the middle of the back to the lower limit of the abdomen.
5. The distance from the top of the shoulder, the dorsal angle of the scapula, to the haunch, the external angle of the ilium.
6. The distance from the xiphoid region, the bottom of the sternum bone, either to just above the fetlock in race horses and large animals, or to below this joint in small or slow horses.
7. The distance from the superior fold of the stifle to the point of the hock.
8. The distance from the point of the hock to the ground.

Another measurement, though not so consistent as those above but useful should the lower parts of the posterior member be missing, is the distance from the superior fold of the stifle to the top of the croup. This distance should equal about one head. However, very often it does not, being less.



Normally the horse is just as high as he is long, namely, two and one-half heads measured from the top of the croup and the withers to the ground for the height, and from the point of the shoulder to the point of the buttock for the length. Race horses are sometimes higher than they are long, while very often the reverse is true of work horses.

Proportional measurements are just as important as the anatomy of the parts in making an analysis of the horse in art. A horse must be correctly proportioned not only in order to be normal anatomically, but also for the reason that otherwise the aesthetic result would be far from satisfying. A horse with exceedingly long cannons, a very large head, a narrow chest, or an oversized back and loins would not only be a freak and a cripple, but would also be ugly to look at.

#### MOVEMENT OF THE HORSE, THE GAITS

A revolution in the theory of the movement of the horse was caused when one investigator, E. Muybridge, long ago published some instantaneous action photographs of the horse.<sup>5</sup> Thereupon many people began to make investigations of the representation of the horse in art.<sup>6</sup>

But instantaneous photographs do not necessarily show what the eye actually sees. In the first place, during movement many subtle changes take place which in many instances cause considerable alteration in the appearance of the general form. These alterations are continuous and changing during movement, so that a rhythmic pattern results within the shape or

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<sup>5</sup> Stillman, *The Horse in Motion*, Boston 1882; Muybridge, *Animals in Motion*, London 1907. He first took these photographs in 1877 or thereabouts. For some other works dealing with the same subject see the Bibliography.

<sup>6</sup> See for example, Anderson, *The Gallop*, Edinburgh 1883; Diehl, *Die Reiterschöpfungen der phidiasischen Kunst*, Berlin 1921; Reinach, *La Répresentation du Galop dans l'Art Ancien et Moderne*, 2nd edition, Paris 1925; Lefort-Ylrouzes, "Les Images du Galop dans l'Antiquité," *RA* XIV, 1939, pp. 45-47. See the Bibliography for some others.

outline of the horse. Secondly, the horse moving through space causes to be described a series of continuous designs or shapes which blend into each other as ground is covered. The camera gets only a stopped moment of a moving whole comprising many moments. The camera cannot get the complete rhythmic pattern, only a frozen pose which may or may not be beautiful. The feeling for moving pattern and rhythm of changing shape can, however, be grasped by an artist. This is clearly seen on the Parthenon frieze, where, although many of the poses are snapshots or stopped action (Figs. 38, 41, 45), the whole frieze forms a continuous rhythmic pattern. One can almost regard the frieze as depicting a single horse moving rhythmically from one attitude to the next. If the frieze could be moved, while the spectator remained stationary, this rhythmical illusion would be as complete as it is in the cinema.<sup>7</sup>

Even when the horse is shown in some impossible position, such as the flying gallop where the forelimbs paw the air, the subject can still be beautiful. However, aside from any beauty of design which such an incorrect representation may have, we must still know what is possible and what is not, so far as the position of the members in motion are concerned, since the Greek artist very often renders the gait correctly, or at least tries to do so.

The gaits are as follows:

1. The gallop. The hind quarters act first, then the anterior members extend to make way for the oncoming posterior, doing so before the hind feet touch the ground. Complete suspension takes place for a moment. Both the anterior and posterior members share in the work of supporting and propelling the body. At certain intervals during the stride, the whole weight of the body rests on one foot only.

2. The canter. This gait is similar to the gallop because the horse lands on one hind foot and then rests on one fore-

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<sup>7</sup> See Chapter V above for a discussion and analysis of the movement of the horses on the Parthenon frieze (Figs. 38-45).

foot prior to suspension. However, sometimes during the stride three feet are on the ground, as the slower pace requires greater support.

3. The trot. This is a criss-cross gait. Each fore-foot with the hind foot diagonally opposite is lifted alternately. During the stride the horse is off the ground twice. This is a very even gait, the horse moving along in a very level motion.

4. The walk. Because this is the slowest pace it requires the greatest support. The body is supported alternately by two and three feet. In a slow walk the horse lifts but one foot at a time.

5. The amble. This gait is rarely natural, and has to be taught to the horse. The fore and hind feet of the same side are lifted and moved forward at the same time. Like the trot this is a very even pace, and particularly desirable for riding horseback. It is less jarring than either a canter or a gallop.

## APPENDIX II

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### ANALYSES OF ANATOMY, PROPORTION, AND GAIT

1. Chapter III, The Orientalising and Early Archaic Periods, 700-550 B. C., Examples I-VII, Figs. 17-23
2. Chapter IV, The Ripe Archaic Period, 560-480 B. C., Examples I-IX, Figs. 24-32
3. Chapter V, The Transitional and Classical Periods, 480-400 B. C., Examples I-XV, Figs. 33-49
4. Chapter VI, The Fourth Century, 400-300 B. C., Examples I-VIII, Figs. 50-59
5. Chapter VII, The Hellenistic Period, Third to First Century B. C., Examples I-II, Figs. 60-62.

#### 1. ANALYSES, CHAPTER III

##### THE ORIENTALISING AND EARLY ARCHAIC PERIODS, 700-550 B. C.

##### Examples I-VII, Figs. 17-23

Analysis Example I, Aryballos from Thebes, 700-675 B. C.  
(Fig. 17)

#### I. ANATOMY.

- A. *Head*. 1. Short and sharply tapered. 2. Forehead like human, bulges out. 3. Axis of eye fortuitously placed. 4. No indication of the supraorbit.
- B. *Body*. 1. Neck is short, and covered almost wholly by mane. 2. Withers absent. 3. Back, loins, and croup not in correct proportion. Croup elevated, but back is too long. 4. Tail low set, springs from buttock.
- C. *Members*. 1. Anterior. a. The outline of the top of the shoulder is marked by a curved line. b. Point of shoulder

indicated. c. Olecranon, elbow recognized. d. Carpus or knee joint indicated. e. Fetlock, pasterns and foot there in general outline. Footlock well accented.

2. Posterior. a. Stifle joint not shown. b. Leg rather full and excessively long when compared to forearm. c. Tuberosity and cord of hock indicated. d. Cannon is rather short, too long on anterior member. e. Fetlock, etc. as on anterior.

## II. PROPORTIONS.

The neck is about equal to the length of the head, as is the distance from the point of the shoulder to where the top of the withers should be. The distance from the xiphoid region to the fetlock is likewise about one head. However, the distance from the top of the shoulder to the haunch is more than one head, while the distance from the back to the inferior limit of the abdomen is less, thus making the trunk too long. The distance from the stifle to the hock is considerably more than one head, while the distance from the hock to the ground is considerably less.

## III. GAIT.

The gait is not a realistic one. Perhaps the artist had a slow walk in mind, for all the feet are on the ground. The right two are retarded, the left two advanced, the hind very much so.

### Analysis Example II, Macmillan Aryballos, c. 650 B. C. (Fig. 18)

#### I. ANATOMY.

- A. *Head*. 1. Is longer than on example above. 2. Eye is better placed. 3. Line drawn above eye, like a brow. 4. Lips and chin are differentiated.
- B. *Body*. 1. Neck seems short. Manes are full but different on the various horses. 2. Back and loins are exceedingly long, hence by comparison croup is short. 3. Tail sprouts from the buttock.
- C. *Members*. 1. Anterior. a. Outline of the top of the shoulder drawn in by means of curved line, as on example above. b. Olecranon sharply accented. c. Forearm is rather short. d. Knee indicated by lines through thickness of member. e. Cannon is too long. f. Fetlock, pasterns, and foot seem in correct outline.

2. Posterior. a. Stifle joint not accented. b. Legs taper too sharply from thigh. c. Hock well accented. d. Cannon very short. e. Fetlock, etc. as in anterior member.

## II. PROPORTIONS.

The neck is less than one head. The distance from the point of the shoulder to the top of the "withers" is likewise less than one head. The distance from the xiphoid vein to the fetlock is much more than one head. The same holds true for the distance from the top of the shoulder to the haunch, while the distance from the back to the inferior limit of the abdomen is considerably less than one head, making the trunk excessively long. From the stifle to the hock is more than one head, while from hock to the ground is quite less.

## III. GAIT.

The gait is very decorative and far from natural. The two hind feet are on the ground while the two forefeet paw the air. This stance is known as a flying gallop, and is quite common on oriental reliefs. It makes for a pleasant composition when a number of horses are shown following each other, as here, within the limits of a frieze encircling a vase.<sup>1</sup>

## Analysis Example III, Chigi Vase, 650-635 B. C. (Fig. 19)

### I. ANATOMY.

- A. *Head*. 1. Short and squarish. 2. Eye shown by means of circle, corners indicated by small spurs. Axis of eye fortuitously placed. 3. Brow line as in *Example II*. 4. Ears set too low, spring from temples.
- B. *Body*. 1. Neck is covered by a very full mane. 2. Sternum very sharply accented. 3. Back and loins too long. 4. Croup well elevated. 5. Tail low set, but nicely arched.
- C. *Members*. 1. Anterior. a. Point of shoulder, outline of top of shoulder, triceps, and muscles of forearm decoratively drawn. b. Triceps are flexed although foot is on ground. c. Muscularity of forearm indicated, but not correct. d. Knee joint swells, bony substructure indicated by means of a broken line in correct direction. e. Cannon becomes perceptibly thinner below knee. f. Fetlock, pasterns, and foot well out-

<sup>1</sup> See Reinach, *La représentation du galop dans l'art ancien et moderne*, Paris 1925, second edition; Lefort-Yloupes, "Les images du galop dans l'antiquité," *RA* XIV, 1939, pp. 45-47.

lined. The footlock seems to have been an after-thought, for in some cases it is not included within the incised outline of the member, but is added to it.

2. Posterior. a. Thigh and buttock muscles indicated by a curved line parallel to boundary of buttock. Buttock is too massive in comparison to leg. b. Stifle is rather curious. Cutaneous fold indicated by lines curving in direction opposite to normal. c. Muscularity of leg shown, but whimsically rendered. d. Tuberosity and cord of hock indicated. e. Cannon, etc. as in anterior member.

## II. PROPORTIONS.

The length of the neck cannot be determined because the mane covers it. It is, however, probably one head long. The distance from the point of the shoulder to the top of the "withers" is more than one head, as is the distance from the xiphoid to the fetlock. The trunk, although fuller than on previous examples, is still rather long, for the distance from the top of the shoulder to the haunch is considerably over one head, and the distance from the back to the inferior limit of the abdomen considerably less. The distance from the stifle to the hock and from the hock to the ground is in each case about one head, and therefore correct. The leg and the forearm are about equal, although the cannons of the respective members are not. Generally speaking, the proportions are better here than in the two examples above. More individual parts are correct in size, giving the horse as a whole a more realistic appearance.

## III. GAIT.

The artist apparently had a walk in mind. All four feet are on the ground, but in rather curious locations. The left hind and the right fore members are retarded; the right hind and the left fore are advanced. This seems to be a criss-cross gait as one would expect in a trot. But that is impossible here since all four feet are on the ground.

## Analysis Example IV, Delo-Melian Vase, 635-620 B. C. (Fig. 20)

### I. ANATOMY.

- A. *Head.* 1. Very small. 2. Eye indifferently painted. 3. Nostrils project beyond outline of muzzle. 4. Lips and chin differentiated. 5. Teeth shown.

- B. *Body*. 1. Neck, short and swan-like, covered almost wholly by mane. 2. Breast projects excessively, adding to swan-like quality. 3. Trunk is exceedingly long, no differentiation between back, loins, and croup. 4. Tail is long and low set.
- C. *Members*. 1. Anterior. a. Very long. b. Elbow and knee not indicated at all, merely become thinner where cannon would start. c. Fetlock not clearly understood. The footlock is done as part of the cannon which is split vertically in two. On the later example, Pfuhl, *Masterpieces*, fig. 4, the cannon is not split, while the footlock is very long, hanging down to below the coronet. d. The pasterns are very short, if there at all, making a single line with the anterior limit of the cannon.
2. Posterior. a. Thigh and buttock are very full. b. Leg is very short. c. Hock accented, but no interior drawing to indicate the cord. d. Parts below hock as on anterior member.

## II. PROPORTIONS.

The neck is less than one head. The distance from the point of the shoulder to the top of the "withers" is approximately one head. The distance from the xiphoid region to the fetlock is exaggerated to a length of two and one half heads. The distance from the top of the shoulder to the haunch is two heads, while the distance through the back to the inferior limit of the abdomen is much less than one head. The distance from the stifle to the hock, and from the hock to the ground is in each case more than one head.

## III. GAIT.

Both horses have all four feet on the ground. The feet of the right horse are disposed as in *Example III* (Fig. 19) above, that is, in a sort of criss-cross position like the trot. The feet of the left horse are placed on the ground as in an amble, if this could be possible with all feet on the ground. The two right feet are retarded while the two left are advanced. As in all the examples studied thus far, the position of the members is more decorative than natural.

## Analysis Example V, Prinias Frieze,<sup>2</sup> Last Quarter of the Seventh Century (Fig. 21)

### I. ANATOMY.

- A. *Head*. 1. Lips and chin defined. 2. Parotoid groove indicated.

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<sup>2</sup> The analysis given here is a general estimate of all the horses



- B. *Body*. 1. Neck is short, mane full. Indicated by means of an incised line starting at the bottom of the parotoid groove and descending to the base of the neck to the "withers."
2. As in all the examples studied thus far, the withers as a distinct region are not rendered. 3. Breast protrudes making a bulging line with the neck, giving a swan-like appearance, as in Delo-Melian vases. 4. Back and loins are too long. 5. Croup not elevated. 6. Tail long and drooping.
- C. *Members*. 1. Anterior. a. Elbow indicated by means of an incised line on the xiphoid region above the forearm. b. Knee barely indicated. c. Member tapers down gradually from the knee to fetlock in a manner reminiscent of the Delo-Melian vase horses. d. Fetlock indicated by a swelling at that point. Footlock is a long depending spur reaching below the level of the coronet as far as the middle of the hoof. Same feature on Delo-Melian vase; cf. Pfuhl, *Malerei*, fig. 108. e. Pasterns are very short, almost an immediate transition from the fetlock to the foot, exactly as on Delo-Melian vases.
2. Posterior. a. Patella of stifle joint not indicated, although there is a slight depression between leg and flank. b. Buttock and thigh too large, blend with the leg below actually extending to a level lower than that of the abdomen as in Delo-Melian vases. c. Hock defined, cord faintly indicated. d. Cannon much too long, and is about in same proportion to leg as on Delo-Melian vases. e. Fetlock, etc. as on anterior.

## II. PROPORTIONS.

The proportions of the Prinias horses are practically the same as those of the horses on the Delo-Melian vases (Fig. 20).

The neck is a little over one head, as is the distance from the point of the shoulder to the top of the "withers." As on the Delo-Melian vases, the distance from the xiphoid region to the fetlock is greatly exaggerated, two heads long. The trunk, too, shows practically the same characteristics. The distance from the top of the shoulder to the haunch is about two heads, while the distance from the back to the inferior limit of the abdomen is less than one head. The posterior member is excessively long. The distance from the

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on the frieze, not of any particular one. The difference between individual horses is very slight, and not sufficiently important to warrant separate analyses of each.

stifle to the hock and from the hock to the ground is in each case well over one head.

### III. GAIT.

As on the vases, all four feet are on the ground in positions approximately resembling an amble. The two left feet are advanced, while the two right are retarded.

## Analysis Example VI, Timonidas Vase, c. 580 B. C. (Fig. 22)

### I. ANATOMY.

- A. *Head.* 1. Short and tapered. 2. Eye indifferently drawn. 3. Brow line as in earlier examples, sort of supraorbit. 4. Parotoid groove, attachment of head indicated by outline of mandible 5. Lips and chin differentiated.
- B. *Body.* 1. Neck partially covered by mane. 2. Back and loins too long. 3. Croup elevated. 4. Tail arched, but low set.
- C. *Members.* 1. Anterior. a. Outline of shoulder shown by means of a curved line, a convention seen on Protocorinthian vases. b. Forearm rather short. c. Knee well defined by swelling. d. Cannon about same length as forearm. e. Fetlock is indicated by a swelling at this point. Pasterns and foot not clear in drawing.  
2. Posterior. a. Stifle fold runs up into flank. b. Leg is rather short. c. Hock-tuberosity scarcely accented, and cord is not indicated. d. Cannon is too long. Rest not clear.

### II. PROPORTIONS.

More of the measurements are in correct proportion on this example than on any thus far. The neck and the distance from the xiphoid vein to the fetlock are each about one head long. The distance from the point of the shoulder to the top of the "withers" is a little over one head. The trunk, in common with all the examples studied thus far, is rather long. The distance from the top of the shoulder to the haunch is considerably more than one head, while the distance from the back to the inferior limit of the abdomen is less. From stifle to hock the distance is less than one head, but from hock to the ground it is correct, one head long.

### III. GAIT.

All four feet are on the ground, and are disposed in a criss-cross fashion as in a trot. The right fore and left hind feet are advanced, while the right hind and left fore feet are retarded.

Analysis Example VII, Amphiaraios Krater, c. 550 B.C.  
(Fig. 23)

I. ANATOMY.

- A. *Head*. 1. Short and squarish. 2. Eye protrudes. 3. Brow line drawn so as to accent protuberance of eye. 4. Ears set too far forward, are almost on forehead. 5. Mandible indicated. 6. Lips and chin well rendered.
- B. *Body*. 1. Back and loins too long, but not so long as previously. 2. Croup actually depressed. 3. Tail arched, but low set.
- C. *Members*. 1. Anterior. a. Previous convention to indicate outline of shoulder persists, but it is so high that it turns across the base of the neck. b. Elbow well accented in the galloping horses. Shown by means of a bump on the walking horses. c. Forearm is full. d. Knee has a definite form. e. Cannon is thin and short. f. Fetlock, pasterns and foot well outlined.
2. Posterior. a. Cutaneous fold over stifle joint indicated. b. Tuberosity and cord of hock shown. c. Cannon, fetlock, etc. as on anterior.

II. PROPORTIONS.

- A. Departure of Amphiaraios. The neck is much less than one head, while the distance from the point of shoulder to the top of the "withers" is just about one head. The distance from the xiphoid region to the fetlock is a little over one head. The trunk is not so long and thin as on previous examples. It is one head from the back to the inferior limit of the abdomen, and not much over one head from the top of the shoulder to the haunch. The distance from the stifle to the hock is more than one head, but from the hock to the ground the distance is just about equal to a head.
- B. Chariot Race at the Funeral Games of Pelias. The proportions are not essentially different here, except that they are changed to suit the design. The flying gallop necessitates a somewhat longer member, but otherwise there are but very minor differences.

III. GAIT.

On the Amphiaraios scene the gait is very interesting. The horses are apparently intended to be walking, but unlike all previous examples, not all four feet are on the ground. Only one foot, the right posterior, is down, while all the others

are partially or wholly lifted. However, the right forefoot is extended as if on the ground; actually it is not, for it is perhaps about to set down. If this were the case it should be slightly bent at the knee. The gait is perhaps akin to a trot, as the left hind and right forefeet are advanced, and the other two are retarded.

## 2. ANALYSES, CHAPTER IV

### THE RIPE ARCHAIC PERIOD, 560-480 B. C.

#### Examples I-IX, Figs. 24-32

Analysis Example I, François Vase, c. 560 B. C. (Fig. 24)

#### I. ANATOMY.

- A. *Head*. 1. Long and narrow. The distance from the inferior maxilla to the top of the forehead is less than twice the total head length. 2. Protuberance of the eye. This is the first attempt to show this feature naturalistically. 3. The eye is decoratively drawn with the same conventions as for the human eye. 4. The lips and chin are almost realistic. 5. Supraorbit is lacking, but some bony structure is indicated by means of interior drawing in the form of a line at the brow.
- B. *Body*. 1. Neck almost perpendicular to the ground. Is wide at the base, tapering quickly upward. The mane is full, and the forelock decoratively braided in the form of a pom-pom. 2. Ribs are drawn in by means of three-lines. This marks the first appearance of the ribs. 3. The great oblique muscle of the abdomen is indicated by means of a line parallel to the inferior limit of the abdomen. The first appearance of this feature. 4. The withers are not there. 5. The back and the loins are long, but not so long as in the preceeding period. 6. The croup is scarcely elevated. 7. The tail is correctly set, is a continuation of the croup.
- C. *Members*. 1. Anterior. a. Complete outline of the shoulder drawn in as in Corinthian ware. More decorative than realistic. b. Presence of the triceps recognized. But rendition is fortuitous. c. Elbow accented. d. Muscularity of the arm shown by means of a line running from the elbow to the carpus. f. Cannon is a little shorter than the forearm. g. Swelling at the fetlock. h. Pasterns are very fine. i. Coronet indicated for the first time. j. Foot normal.

2. Posterior. a. Muscularity of thigh and buttock rendered decoratively. b. Stifle fold runs well up into flank. c. Knee strongly accented. d. Tuberosity of hock realistic. Cord drawn in. e. Cannon much shorter than leg. f. Fetlock, etc. as on anterior.

## II. PROPORTIONS.

The head, although long and narrow, is still shorter than the neck. The distance from the point of the shoulder to the top of the "withers" is about one head. The trunk is long and narrow, for the distance from the top of the shoulder to the haunch is more than one head while from the back to the inferior limit of the abdomen is less. The distance from the xiphoid region to the fetlock, and from the stifle to hock are both more than one head, while from the hock to the ground is less than one head.

## III. GAIT.

The gait is very much like that on the Amphiarao Krater (Fig. 23). The feet are disposed as if in an amble, the two right retarded and on the ground, the two left advanced and partially off the ground. On the lower frieze of the neck, the flying gallop appears.

## Analysis Example II, Exekias Amphora, c. 540 B. C.

### I. ANATOMY.

- A. *Head*. 1. Long and tapered. 2. Eye protrudes. 3. Supra-orbit recognized for the first time. 4. Zygomatic ridge makes its appearance for the first time. 5. Ear not correctly set.
- B. *Body*. 1. Neck describes a more graceful curve than on François Vase, but is still too wide at the base. 2. Sternomaxillaris shown by means of a short line starting at the throat. 3. Line of back and neck do not join, form a sort of "withers." 4. Back curves gracefully, and is not too long. 5. Croup is well elevated. 6. Great oblique muscle indicated as on François Vase. 7. Veinous structure of xiphoid region rendered for first time and shown by means of five parallel lines prependicular to true direction. 8. Tail low, but makes a continuous line with the croup.
- C. *Members*. 1. Anterior. a. Outline of the shoulder decorative as before. b. Triceps decorative. c. Elbow accented. d. Muscularity of forearm rendered by means of two interior lines. e. Bony structure of carpus shown by means of interior

drawing. Cannon is short, but too thin. Ligamentous structure shown by means of drawing. g. Swelling at the fetlock. Footlock consists of a tuft of hair hanging down. h. Coronet and foot normal.

2. Posterior. a. Buttock excessively wide. b. Semitendinosus and semi-membranosus shown. c. Knee or patella decoratively rendered. d. Stifle fold runs well up into flank. e. Muscularity of leg shown by means of interior drawing. f. Hock well drawn, bony structure and cord included. g. Cannon, etc. as on anterior.

## II. PROPORTIONS.

The distance from the point of the shoulder to the top of the "withers," and from the xiphoid region to the fetlock, are each a little more than one head. The neck is also a little more than one head. The trunk, however, is for the first time in correct proportion. It is one head from the back to the inferior limit of the abdomen, and from the top of the shoulder to the haunch. The distances from the stifle to the hock and from the hock to the ground are correct, one head in each case.

The horse is practically naturalistic as regards the proportions. Yet, in common with all the earlier examples, and in spite of the correct proportions of the trunk, it is longer than high. The very wide buttock and thigh add much to the horizontal dimension.

## III. GAIT.

The horse is standing still.

Analysis Example III, Siphnian Frieze, West Side  
(*Fouilles de Delphes* IV, pls. VII-VIII) (my Fig. 25)

### I. ANATOMY.

- A. *Head*. Bad state of preservation. 1. Zygomatic ridge very faint. 2. Eye completely round, no differentiation between upper and lower lids. Both form a continuous modeled circle. The tear duct is very short and looks as if the lids were pinched together. The axis of the eye is parallel to the top of the face. 3. Supraorbit lacking. 4. Brow protrudes and seems to bulge over outside corner of the eye. 5. Some venous structure is shown in front of the eye, this feature peculiar to this side. (See Kennedy, *Treasury of the Siphnians*, pl. 16, for details.)

- B. *Body*. 1. Neck is rather swan-like and thrown back so that it is perpendicular. 2. No indication of the withers. 3. Back is rather short. 4. Croup is excessively long. 5. Tail low set. 6. Xiphoid vein indicated by means of a number of incised lines.
- C. *Members*. 1. Anterior and Posterior together. a. Outline of the shoulder not visible. b. The triceps are *doubled*. c. Elbow and knee are both very well accented. d. Leg is short. e. Stifle fold rendered. f. The play of the pasterns recognized, shown in positions which vary according to action of the member. Are snapped back when foot is off the ground, and sloped forward, that is overextended, when member is supporting the weight of the body.

## II. PROPORTIONS.

The head is long and narrow as was the case of the vases in *Examples I* (Fig. 24) and *II* above. The neck is just about one head long. The distance from the xiphoid region to where the fetlock would be, if it were extant, may be estimated at about one head possibly. The distance from the point of the shoulder to the top of the "withers" is more than one head. The distance from the top of the shoulder to the haunch is equal to about one head, while the distance from back to the inferior limit of the abdomen is less. Thus the trunk is slight, as was the case with the first two examples. The distance from the stifle to the hock, and from the hock to the ground is less than one head in each case. This measurement was taken from members in low relief and from the horses in the background.

## III. GAIT.

A discussion of the gait can only be conjectural, owing to the bad preservation of the members. The outside forefeet of both horses were probably on the ground, while the inside ones were raised high, as the one extant member indicates. The posterior members were probably both on the ground, with the inside member advanced, and the outside retarded.

### Analysis Example IV, Siphnian Frieze, South Side (*Fouilles de Delphes* IV, pls. IX-X)

## I. ANATOMY.

- A. *Head*. Extremities missing. 1. Eye worked as in *Example III*. Lids modeled in a continuous circle. No differentiation

between upper and lower. Axis of the eye parallel to the top of the face. 2. Supraorbit is again lacking. 3. Zygomatic ridge faintly rendered. 4. Brow protrudes and bulges over the outside corner of the eye, as on west side. 5. Inferior maxilla well accented.

- B. *Body*. 1. Neck strongly arched. Mane heavy near summit, but narrows at base. Decoratively carved in a series of serried waves ending in tufted bits of hair tied into curls along the edge. 2. Breast protrudes excessively, adds to swan-like quality of neck. 3. Back is rather short. 4. Croup long by comparison. 5. Tail moderately well attached, but is low set, even though well arched. 6. Xiphoid vein, as in *Example III*, consists of a number of incised lines. This pattern is repeated on the breast in front of the anterior member. The group of horses moving away from the altar, on the south side, do not have the vein at all.
- C. *Members*. Are in a very fragmentary state of preservation.
1. Anterior. a. Triceps incorrectly done. Appear as two distinct masses of muscle. b. Muscularity of forearm desultorily modeled. c. Bony parts of carpus not distinct within the outline of the swelling at the joint. d. Elbow absent, perhaps because of the position of the member which seems to sprout from the thorax.
  2. Posterior. a. Buttock excessively wide. b. Muscularity of thigh and buttock not indicated. c. Gaskin, that is, the leg, is rather short because the buttock curve extends down too far. d. Patella not sharply marked. e. Stifle fold runs up into flank, and then continues along inferior limit of the abdomen. f. Bony structure of the hock, the tuberosity and the cord of the hock, slightly indicated. g. Cannon seems in correct proportion, but there is no differentiation between the bony and ligamentous parts. f. Fetlock, pasterns, etc. done as in *Example III*, in varying positions to suit the action.

## II. PROPORTIONS.

The proportions of the three horses are the same. The heads are long and narrow. The neck is approximately one head long. The distance from the point of the shoulder to the top of the "withers" is more than one head. The trunks show exactly the same proportions as in *Example III*, one head from the top of the shoulder to the haunch, and less from the back to the inferior limit of the abdomen. The distance from the xiphoid region to the fetlock can be



estimated at about one head, or slightly more. The distance from the stifle to the hock, where this measurement is slightly less than one head, is the same as the distance from the hock to the ground.

### III. GAIT.

The gait can only be conjectured. However, the play of the pasterns is well understood.

#### Analysis Example V, Siphnian Frieze, East Side (*Fouilles de Delphes* IV, pls. XI-XII) (my Figs. 26, 27)

##### I. ANATOMY.

- A. *Head*. All are in a very fragmentary condition. 1. Zygomatic ridge more sharply marked than on other two sides. 2. Eyeball carved in higher relief. 3. Eyelids differentiated, the lower shallower than the upper. 4. Tear duct is channeled out, same channeling technique on lower lid. 5. The axis of the eye makes an obtuse angle with the top of the face. 6. The supraorbit is present. It is not very subtle, no more than a gouged out hollow. The supraorbit is lacking on the other two sides.
- B. *Body*. 1. Neck is full and swan-like. Mane is heavy, with a crest-like forelock. There is no interior carving on the mane as on the other two sides. 2. Withers absent. 3. Back short. 4. Croup well elevated, but far too long, actually larger than on other two sides. 5. Tail very badly set. Sprouts from the buttock. 6. Xiphoid vein absent. 7. Stifle fold does not continue along the abdomen as on the other two sides.
- C. *Members*. Extremities are all missing except those in low relief on the horses in the background. 1. Anterior. a. Elbow not strongly accented. b. Triceps absent, are present, incorrect, however, on the other two sides.
2. Posterior. a. Buttock and thigh far too wide and full. Buttocks arcs out and overhangs the posterior member in a very unnatural way. b. Hock, including tuberosity and cord, as well as some bony parts, are rendered much more distinctly than on the other two sides. c. Cannon carved so as to show bony part distinct from suspensory ligament. d. Fetlock distinct, but, unlike as on the other two sides, there is no play in the pasterns, which here in all instances make a straight line with the cannon. All the extant feet are on the ground.

## II. PROPORTIONS.

Because the extremities of all the heads are missing, the module must be reckoned as twice the distance from the inferior maxilla to the top of the forehead. A little must be added to this measurement in order to have proportions consistent with the other two sides where the heads are long and narrow.

The neck is then a little over one head, as is the distance from the point of the shoulder to the top of the "withers." The trunk seems to be correct. The distances from the top of the shoulder to the haunch and from the back to the inferior limit of the abdomen, are in each case about one head. The measurements from the xiphoid region to the fetlock, from the stifle to the hock, and from the hock to the ground are impossible to take or even to calculate. However, the posterior members in low relief in the background give a measurement of one head from the hock to the ground.

The animals on this side are even longer than high than are those on the other two side. This would seem impossible because of the correct proportions of the trunk here, and the almost correct proportions of the trunk on the other two sides. But the excessive projection of the breast, and the very wide buttock and thigh, add much to the horizontal dimension.

## III. GAIT.

Because of the lack of extant members, it is almost impossible to reconstruct the gait. Most of the limbs must have been freestanding, and hence easily broken off. The anterior members were no doubt off the ground pawing the air, while the posterior were firmly set down on the ground. Even though the horses' bodies are level, it must be concluded that the artist meant to show them rearing up in agitation in the midst of the heat of the battle.

Analysis Example VI, No. 700, Akropolis Museum, Athens  
(Figs. 28, 29)

## I. ANATOMY.

- A. *Head*. Extremity is missing. 1. Upper and lower eyelids differentiated. Upper lid shows a fold. 2. Eye protrudes slightly. 3. Ear well set, directly over parotoid groove. 4. Zygomatic ridge present.

- B. *Body*. 1. Neck—splenius is well accented, although the neck is held high relaxing this muscle. 2. Back is long. 3. Croup moderately elevated. Not too long. 4. Xiphoid vein rendered by means of same convention as on Siphnian frieze, by means of five parallel lines on the left side hidden from view by the horseman's foot. 5. A slight indication of the withers. First time this region appears.
- C. *Members*. 1. Anterior. a. Elbow is well marked. b. The whole humerus seems to protrude beyond the sternum. c. Triceps barely visible on the left side where the member is slightly raised, but is well marked on the right side where the foot was probably on the ground. This is the first time the working of the triceps is understood. d. Carpus is realistic, the bony parts are visible. e. Cannon remarkably good, splints and suspensory ligament differentiated from the bone. f. Fetlock, pasterns, and foot well marked. There are restorations or repairs at this point.
2. Posterior. a. The haunch is well marked. b. Semi-tendinosus and semi-membranosus well accented.

## II. PROPORTIONS.

Because the extremity of the head is missing, the same device must be employed here as on the east side of the Siphnian frieze. Half a head is approximately 0.15 m., making the neck, which measures 0.33 m., slightly more than one head long. The distance from the point of the shoulder to the top of the withers is about one head, 0.31 m., while the distance from the xiphoid region to the fetlock is well over one head, measuring 0.38 m. The trunk is somewhat slight. It is 0.31 m. from the back to the inferior limit of the abdomen, or just one head, and 0.33 m. from the top of the shoulder to the haunch, or just over one head. The remaining dimensions are not obtainable, for the posterior members are missing. The total length of the animal is 0.81 m. The height at the withers is 0.74 m., a proportion reminiscent of the earlier examples studied above.

## III. GAIT.

The gait can only be conjectured, for only one member is extant. It can be assumed, however, and with some degree of confidence, that the right anterior member, as indicated by the triceps, was firmly on the ground. The right posterior member was probably leaving the ground, for there is no play in the muscles of the thigh and buttock; whereas, on the

left side the reverse is true, allowing the assumption, therefore, that the left posterior member was on the ground in the process of propelling the body forward. Thus, if the right anterior and the left posterior members were supporting and propelling the body respectively, it must be that the other two were in a state of activity leading to the taking over of these tasks. This might indicate a trot if more muscular play were evident. Since this is not the case, it may be assumed that the horse was meant to be shown in a fast walk.

Analysis Example VII, No. 697, Akropolis Museum, Athens  
(Figs. 28, 30)

I. ANATOMY. Only the forequarters are extant.

A. *Head*. Generally better than No. 700. This is the reason many investigators put it a decade later. 1. Much bony structure visible, but not all entirely correct. As in the case of No. 700, there are curious bumps between the ears and the eyes. 2. Zygomatic ridge is sharp. 3. Orbicularis of lips present. 4. Maxillo-labialis, zygomatico-labialis rendered. 5. Nostril well defined. 6. Ear not so well set as on No. 700. Concha is set too far forward, right over the mandible, and not quite over the parotoid groove. Muscularity at base of concha exaggerated as on No. 700.

C. *Members*. Only anterior. 1. Humerus protrudes as on No. 700. 2. Action of triceps understood. 3. Elbow very well rendered. The different configurations of flexed and relaxed members understood. 4. Carpus all right, except that the suspensory ligament incorrectly begins above the joint. 5. Cannon is not so good as on No. 700. The splints are lacking here. Difference between bone and ligament is not subtly rendered. 6. Fetlock, pasterns, and foot correct. There are some restrictions and repairs here.

It seems, thus, that No. 697 is better as regards the head, but inferior to No. 700 as regards the members.

II. PROPORTIONS.<sup>1</sup>

The head measures 0.28 m. Thus the neck is more than one head long, for it is about 0.34 m. The distance from

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<sup>1</sup> The measurements given for both Nos. 700 and 697 were taken directly by the author in the Akropolis Museum, Athens, during the summer of 1939.

the point of the shoulder to the top of the withers is even greater, approximately 0.355 m. The horizontal dimension for the trunk is unknown, but the distance from the back to the inferior limit of the abdomen is less than one head, 0.26 m. The distance from the xiphoid region to the fetlock is well over one head, 0.40 m. in length. The other measurements are not available. The height at the withers is practically the same as No. 700, namely, 0.72 m.

### III. GAIT.

Here we are at even greater disadvantage in reconstructing the gait than in the case of No. 700. From the position of the anterior members, however, and from what we have been able to deduce about the movement of No. 700, the gait may be plausibly reconstructed. The left member is on the ground supporting the weight, as indicated by the bulging triceps. The right foot is off the ground. Thus the position for the anterior members is exactly like that of No. 700. We may therefore assume that the posterior members were in a similar position, and that the horse is in a fast walk.<sup>2</sup>

## Analysis Example VIII, Bronze Horse, in MMA (Fig. 31)

### I. ANATOMY.

- A. *Head.* 1. Eyeball must have been inset, now missing. 2. Protuberance of eye well elevated. 3. Supraorbit definitely defined. 4. Ears set too far forward, almost like horns. 5. Zygomatico-labialis and maxillo-labialis present as in No. 697. 6. Nostril full and distended. 7. Orbicularis of lips present.

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<sup>2</sup> So alike are the two horses, especially the measurements available, that it is very tempting to suggest that they were companion pieces of a single decorative scheme. This assumption is given further plausibility by the positions of the heads, turned slightly to one side. It is quite possible, therefore, for them to have stood side by side with a figure in the center, toward which their heads may have been turned. That figure could have been a man leading them by the halter. Another alternative is a procession of several horses, of which No. 697 and No. 700 were a part.

The similarity in the gait, as deduced, permits the conclusion that both were part of a single decorative scheme, and by way of corollary, of absolute contemporary date.

- B. *Body*. 1. Neck nicely arched. Sterno-maxillaris and mastoido-humeralis muscles well marked, and, for the first time, understood in relation to action. 2. Sterno-trochinus muscles of breast realistically treated for the first time. 3. Withers slightly more pronounced than on Akropolis horses. 4. Back and loins not too long. 5. Croup elevated, but falls too quickly posteriorly. 6. Flank hollowed revealing outline of the thigh. 7. Haunch even more strongly marked than before. 8. Tail forms a continuous line with the croup. 9. Xiphoid vein lacking.
- C. *Members*. 1. Anterior. a. Point of shoulder, the scapulo-humeral articulation, does not protrude as on Akropolis horses. b. Outline of the top of the shoulder visible. c. Working of the triceps not so well understood as on the Akropolis horses. There is no difference between raised and lowered members. d. Elbow not so clearly revealed as on Akropolis horses. e. Muscular play of the forearm not indicated. f. Cannon, bone, and ligament discernible, but not so well as on No. 700. g. Carpus, bony parts not so clear as on No. 700. h. Fetlock in good relation to pasterns, the coronet well marked, the foot normal.
2. Posterior. a. Buttock and thigh in better proportion, not excessively wide. b. Knee revealed, shape differentiated in relation to action of member. c. Stifle fold subtler than on Akropolis horses, disappears into hollow of flank. d. Hock shows same lack of details as carpus. e. Cannon not so good as in anterior member. g. Fetlock, etc, missing.

## II. PROPORTIONS.

Generally the proportions are no better, nor any worse than on the Akropolis horses. The neck is a little more than one head, as is the distance from the point of the shoulder to the top of the withers. The distance from the xiphoid region to the fetlock, however, is well over a head. The trunk is a little long and thin, for the distance from the top of the shoulder to the haunch is more than one head, and less than one head from the back to the inferior limit of the abdomen. Nevertheless, the distance from the stifle to the hock and from the hock to the ground is in each case one head.

The total length of the animal is greater than the height at the withers and the croup. But, generally speaking, it must be admitted that the various parts of the animal are well integrated to each other, so that an air of realism results despite the incorrect dimension of some of the parts.

## III. GAIT.

The gait is similar to that deduced for the Akropolis horses. The left anterior and the left posterior members are advanced. The reverse is true of the other two members. The right anterior is placed firmly on the ground supporting the weight, while the left is off the ground about to come down. The left posterior member, the foot of which is missing, is providing the motive power. The fetlock is so near the ground that the only way in which the rest of the member could fit into the remaining space, would be to reconstruct it with overextended pasterns, and fetlock in contact with the ground. The right posterior member is retarded, and was probably shown leaving the ground prior to coming forward to take over the task of propelling the body.

## Analysis Example IX, Demarateion Dekadrachm, 479-478

## B. C. (Fig. 32)

## I. ANATOMY.

- A. *Head*. Not very distinct. Outline is long and narrow, tapers sharply at end. Only discernible details are the protuberance of the eye, and the outline of the inferior maxilla.
- B. *Body*. 1. Neck well arched, and head well attached. 2. Presence of withers cannot be determined because of the harness. 3. Back and loins too long. 4. Croup short and well elevated. 5. Haunch well marked. 6. Flank is hollowed.
- C. *Members*. 1. Anterior. a. Triceps remarkably well rendered. b. Muscularity of forearm shown. c. Carpus very distinct, and differentiated according to action of member—enlarged when straight, diminished when bent. d. Cannon excellent considering the size. e. Fetlock, pasterns, and foot very clear. 2. Posterior. a. Stifle fold very natural. b. Femur of the thigh visible on the surface. c. Muscularity of the gaskin well defined. d. Hock, despite size, displays cord and tuberosity with great clarity. e. Cannon better than on anterior member. Ligament and bone separate and clear. f. Fetlock, etc. as on anterior.

## II. PROPORTIONS.

This is a large race horse. The neck and the distance from the point of the shoulder to the top of the withers are both a little more than one head. The trunk is long and thin. It is well over one head from the top of the shoulder to the haunch, and just about a head from the back to the inferior

limit of the abdomen. The distance from the stifle to the hock is one head, but more from the hock to the ground, and even more from the xiphoid region to the fetlock. Curiously enough, this horse is just as long as high. It is the first example studied thus far that is quadrated.

### III. GAIT.

The members are disposed as in an amble, the two right feet are retarded, and the two left advanced and off the ground.

## 3. ANALYSES, CHAPTER V

### THE TRANSITIONAL AND CLASSICAL PERIODS, 480-400 B. C.

#### Examples I-XV, Figs. 33-49

#### Analysis Examples I, Span of Oinomaos (Figs. 33, 34)

##### I. ANATOMY.

- A. *Head.* (Cf. Buschor and Hamann, *op. cit.*, pl. XXII, for a photograph in large scale of the head.) 1. Long and narrow as in the archaic period. 2. Eye is well done. Protrudes realistically. Tear ducts indicated, but outside corner is rounded. Axis of eye correct. 3. Mandible not marked strongly enough. Indicated by means of a low ridge at outline. 4. Parotoid groove scarcely marked, ridge of mandible and slight depression mark attachment of head. 5. Ear is not well set. Too high on the lateral face of the forehead, reminiscent of the Bronze Horse, cf. *Example VIII*, Chapter IV (Fig. 31) above. Concha springs out without muscular transition at the base. Ears were probably thrown back, as creases in the skin at the base indicate. 6. Zygomatic ridge well marked. 7. But such muscles as the zygomatico-labialis, maxillo-labialis, and buccinator are not modeled at all. 8. Nostrils approach naturalism for the first time. Are crescent-shaped and correctly located at the extremity of the nose, leaving room for the lips. 9. Extremity of the nose defined. Allows for a transition to the upper lip. 10. Both upper and lower lips are realistic. Mouth is open revealing the teeth. 11. The bars, space on the gums where there are no teeth, understood. 12. There is a hole just inside the corner of the mouth which probably formed a place for attaching the reins. 13. Inferior side of the head modeled in



correct general outline for the first time. The hollow between the lateral limits of the lower jawbone, the inferior maxillary, is modeled. 14. The supraorbit is very subtle. It blends into the surrounding area. 15. Incised lines at the throat to indicate the creasing of the skin so as to make the attachment of the head look more realistic.

The general outline of the head is very good. It is rendered in a few simple planes and surfaces, each more or less sharply demarcated. This is especially evident at the extremity of the head where the muzzle joins the end of the nose to form an obtuse angle. The same happens when the end of the nose joins the top of the face, also between the lateral and superior sides of the face, and again between the lateral and inferior sides.

- B. *Body*. 1. Neck. Sterno-maxillaris and mastoido-humeralis muscles clear. Mane clearly differentiated from the neck. 2. Xiphoid vein flows along the abdomen in an undulating line as far as the stifle. 3. Withers are partly missing, but the outline can be restored, would then be prominent. 4. Trunk is long and thin. 5. Back and loins are too long when compared with the croup, which is too short for the size of the animal. 6. Tail continues line of the croup, but it is not so high set. 7. Flank and haunch, and abdomen modeled very realistically. Subtle transitions from one surface to the next, especially in the case of the outside horse, cf. *Olympia* III, pl. XIII.

- C. *Members*. Extremities are lacking, or else exist in a very fragmentary condition. 1. Anterior. a. Spine and outline of the scapula very clear. But direction is too vertical, not diagonal enough. Top too far forward, almost at anterior limit of the withers.

2. Posterior. a. Knee cap visible and very realistic. Seen through the flesh, while the stifle fold is stretched taut in a very naturalistic way. b. Superficial gluteus, semi-tendinosus, and semi-membranosus clear on the second horse from the outside.

## II. PROPORTIONS.

The head is a little more than twice the distance from the bottom of the mandible to the forehead through the eye, but is about the same length as the neck. The distance from the point of the shoulder to the top of the withers is a little more than one head, even though the anterior member

was probably not extended. The trunk is somewhat longer than deep, for the distance from the top of the shoulder to the haunch is a little more than one head, while the distance from the back to the inferior limit of the abdomen is a little less. The remaining measurements are not available because of the fragmentary condition of the members. It is interesting to note, however, that the distance from the stifle to the top of the croup is about one head.

### III. GAIT.

It is impossible even to attempt a reconstruction of the gait. The probable position of the feet on the ground cannot be estimated or even conjectured, because neither the triceps nor the extremities of any of the members are extant.

Very likely, it may be that the horses were standing still. That would fit the iconographic context of the scene in which the chariots of Pelops and Oinomaos are waiting before the start of the race.<sup>1</sup>

## Analysis Examples II, Span of Pelops (Fig. 35)

### I. ANATOMY.

(Cf. *Olympia* III, pl. XII, photograph with no modern restorations.)

A. *Head*. Only part of one head extant, that of the third horse from the outside. It is not completely modeled. The eyelids

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<sup>1</sup> Pfuhl, *JdI* XXI, 1906, p. 154, fig. 3, believes that the team of Oinomaos is waiting and that of Pelops ready to start. His reconstruction of the horses, although plausible, is entirely fortuitous, because the essential muscles which might indicate the position of the members are not extant. The modern restorations are thus not necessarily correct.

Bulle, *JdI* LIV, 1939, pp. 137-218, "Der Ostgiebel des Zeustempels zu Olympia," reviews the various reconstructions of the two teams by other investigators, including Pfuhl's, and offers one of his own. His reconstruction of the members differs from Pfuhl's, cf. his fig. 1, p. 161, and Beilage 1, and also p. 193, fig. 42. Bulle's attempt seems the more logical of the two, but an examination of the horses reveals the fact that his reconstruction of the triceps and shoulder muscles are very much overdone. In fact, the horses look no longer Greek, for there are more modern parts than original. Besides, some of the muscles which he reconstructs, as, for example, those of the shoulder, do not appear in Greek sculpture until the middle of the fourth century, cf. *Example* VI, Chapter VI (Fig. 56), below, horses on the frieze of the Mausoleum at Halicarnassos.

are not indicated, nor are any other pertinent details. There are creases at the throat. The extremity is missing.

- B. *Body*. 1. Neck. Not too much detail. From an inside horse. Mane clearly differentiated from the neck. Very much like Oinomaos' horses. 2. Withers not very well developed. 3. Back and loins long, croup short. 4. Xiphoid vein and creases behind anterior member as on *Example I* (Figs. 33-34). 5. Abdominal sac, showing great oblique muscle of abdomen, very good on outside horse. 6. Stifle fold, flank, haunch as good as on *Example I*.

## II. PROPORTIONS.

The length of the head and the neck are not available. Only the trunk can be measured. It is of the same proportions as the first example. The distance from the top of the shoulder to the haunch is a little more than from the back to the inferior limit of the abdomen.

## III. GAIT.

Because none of the extremities of the members are extant, the position of the feet on the ground cannot be ascertained. But for iconographical reasons it may be assumed that the horses were standing still, and that all four feet were on the ground, or almost all.

## Analysis Examples III, Parthenon Frieze (Fig. 38) (Slab II, West, pl. 61, fig. 2)

### I. ANATOMY.

- A. *Head*. Not well preserved. 1. Supraorbit well worked. 2. Zygomatic ridge sharply accented. 3. Limit of mandible marked by means of a ridge, not naturalistic. 4. Atlas bone appears for the first time. 5. Head not realistically attached to the neck.
- B. *Body*. 1. Neck short. Inferior face too curved in silhouette. 2. Back, loins, and croup in correct proportion. 3. Flank hollowed. 4. No xiphoid vein at all. 5. Five incised lines behind anterior member to show creasing of skin. Actually impossible in nature when member is in that position.
- C. *Members*. 1. Anterior. a. Triceps a little too strong for position of member. b. Scapula evident and well forward, as it should be for the position of the member. c. Play of the extensors of the phalanges seen in the forearm.

2. Posterior. a. Stifle fold very realistic. Reveals outline of the femur. Is stretched taut across the flank. b. Skin on inside face of gaskin shows veinous structure. c. Separate bones of hock distinguishable, and correctly displaced for position of member. d. Cord and tuberosity of hock good. e. Splints, suspensory ligament of cannon very distinct. f. Fetlock joint well marked. g. Pasterns short and thick.

## II. PROPORTIONS.

The head is about 0.245 m. long, while the neck which is 0.242 m. is slightly shorter. The distance from the point of the shoulder to the top of the withers is about 0.270 m. This dimension is greater than one head because of the extension of the shoulder in movement. The trunk is in correct proportion, 0.255 m., or just one centimeter more than one head, from the top of the shoulder to the haunch, and again from the back to the inferior limit of the abdomen. The distance from the stifle to the hock is exactly one head, 0.245 m., while from the hock to the ground the distance is 0.250 m. The measurement of the anterior member cannot be accurately taken because of the position. It is rather long, approximately 0.380 m.

## III. GAIT.

The work of supporting the body devolves on one foot only, the left posterior. The anterior members are extending forward prior to coming down, while the right posterior foot is about to come down to help propel the body forward. If complete suspension ensues, the gait would be a gallop. But, because one foot is on the ground, it is safer to say that the gait is perhaps a canter.

## Analysis Examples IV, Parthenon Frieze (Fig. 39)

(Slab III, West, pl. 62, fig. 5)

### I. ANATOMY.

- A. *Head.* 1. Eye is not prominent enough. Too almond shaped. 2. Zygomatic ridge a little too strongly marked. 3. Buccinator and maxillo-labialis are prominent. 4. Parotoid groove not indicated, hence attachment of head not so good as it could be. 5. Mouth realistically done. The horse is about to be bridled.
- B. *Body.* 1. Neck is excessively arched. Heavy creasing at base near withers. 2. Xiphoid vein very heavy at cartilaginous

part, then vein emerges and branches out extending as far as the inguinal region. 3. Withers very strongly marked. 4. Muscles of breast full and fleshy. 5. Back, loins, and croup in good proportion to each other. 6. Tail well set. 7. Five small incisions behind anterior member, reminiscent of earlier work. 8. Hollow of flank too sharply marked. 9. Stifle fold barely visible because member is relaxed, and could not be taut.

- C. *Members.* 1. Anterior. a. Triceps bold. Limits marked by deep depression. b. Scapula seen in full outline, including spine. Retarded to suit position of member. c. Extensors of phalanges on forearm sweep down correctly over carpus joint. Remainder not well preserved.

2. Posterior. a. Limits of superficial gluteus, femoral biceps, semi-tendinosus, and semi-membranosus marked by deep depressions. b. Muscles of gaskin are flexed. c. Cord of hock clear. d. Hock is a single mass, does not reveal separate bones. e. Cannon too thick. f. Splints rendered by means of two parallel grooves beginning at the hock, running along the cannon, and then flaring slightly just above the fetlock. g. Suspensory ligament distinct. h. Fetlock correspondingly heavy. i. Pasterns short and thick.

## II. PROPORTIONS.

The head measures approximately 0.245 m., while the neck is about one centimeter longer, 0.255 m. The distance from the point of the shoulder to the top of the withers is longer still, 0.265 m. The trunk retains a trace of archaism. It is longer than deep, 0.270 m. from the top of the shoulder to the haunch, and 0.255 m. from the back to the inferior limit of the abdomen. Like the horse of *W I*, the distance from the xiphoid region to the fetlock is very long, in this case 0.32 m. The measurements of the posterior member are both approximately one head, 0.25 m., respectively, from the stifle to the hock and from the hock to the ground.

The horse is approximately quadrated, 0.630 m. from the point of the shoulder to the point of the buttock, and the same distance from the withers to the ground. However, the distance from the croup to the ground is a little less, 0.590 m., probably because of the slightly bent position of the posterior members.

## III. GAIT.

The horse is standing and about to be bridled. It stands solidly on the forefeet, while the hind feet fidget nervously.

Analysis Examples V, Parthenon Frieze  
(Slab IV, West, pl. 63, fig. 7)

I. ANATOMY.

- A. *Head*. 1. Is in an impossible position. 2. Venous structure seen through the thin skin. 3. Buccinator, maxillo-labialis, and zygomatico-labialis well worked. 4. Atlas bone prominent. 5. Parotoid groove distinct. 6. Eye prominent.
- B. *Body*. 1. Neck extremely arched. Mastoido-humeralis, and sterno-maxillaris well worked. 2. Abdomen full. 3. Xiphoid vein delicately modeled, reaches as far as the inguinal region. 4. Breast muscles full and fleshy. Rest is covered by other figures.
- C. *Members*. 1. Anterior. a. Outline of shoulder clear. Retarded to suit position of member. b. Triceps correct for action. c. Muscles of forearm in correct play to suit action. d. Carpus good, action of member is taken into account. e. Splints, bone, and ligament distinct in the cannon. f. Venous structure seen through fine skin on the forearm—inside and outside faces, and also on triceps.
2. Posterior. a. Femoral biceps correctly flexed to suit action. b. Venous structure and fine skin on inside face of gaskin good. c. Hock is excellent, various bones and their displacement understood. Cord and tuberosity clear. d. Cannon as on anterior member.

II. PROPORTIONS.

The proportions and actual measurements are practically like those of *Examples III* (Fig. 38) and *IV* (Fig. 39) above. The head is 0.250 m., the neck 0.260 m., and the distance from the point of the shoulder to the top of the withers 0.270 m. The trunk measurements can only be approximated because of the rider, but are probably about 0.255 m. in either direction. The distance from the stifle to the hock, and from the hock to the ground is in each case about 0.26 m., but the anterior member measures 0.310 m. from the xiphoid region to the fetlock, that is, where the fetlock should be.

III. GAIT.

The gait is very interesting. The right anterior member is bent and raised high, while the left is straightening out as it reaches the ground prior to taking over the momentary support of the body. The right hind member is well off the

ground, while the left just leaving it after having just finished its work of propelling the body forward. It seems, then, that the gait is a canter, where the minimum support of one member is retained and the body never reaches the state of complete suspension.<sup>2</sup>

### Analysis Example VI, Parthenon Frieze (Fig. 40)

(Slab V, West, pl. 64, fig. 9)

#### I. ANATOMY.

- A. *Head*. 1. Eye prominent. 2. Zygomatic ridge distinct. 3. Veinous structure beneath thin skin clear. 4. Various muscles of the lateral sides of the face worked. 5. Lower jaw not long enough. 6. Atlas bone prominent.
- B. *Body*. 1. Neck is strongly arched. 2. Breast muscles well rendered. Whole center portion of animal covered by a figure.
- C. *Members*. 1. Anterior. a. Triceps well rendered. Baggy. b. Outline of shoulder distinct. c. Muscles of forearm good. 2. Posterior. a. Femoral biceps sharply accented and distinct from superficial gluteus. b. Gaskin muscles well worked. c. Cord of hock, and tuber calcis distinct. d. Cannon displays splints and suspensory ligament realistically.

#### II. PROPORTIONS.

There are no casts of this slab in the *MMA*, hence no measurements were taken. The neck seems to be about one head long, as well as the rest of the measurements, except the distance from the point of the shoulder to the top of the withers, and from the xiphoid region to the fetlock.

#### III. GAIT.

The horse is held by the halter and stands at rest.

### Analysis Example VII, Parthenon Frieze (Figs. 41-42)

(Slab VIII, West, pl. 66, fig. 15)

#### I. ANATOMY.

- A. *Head*. 1. Veinous structure clear, but is a little too sharp.

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<sup>2</sup> See Diehl, *Die Reiterschöpfungen der phidiasischen Kunst*, who makes some very careful analyses of the gait of the horses on the Parthenon frieze. He is, however, primarily interested in the breed of the horse, and also how closely the sculptor approximated "stopped-action" in the various poses of the animals. He gives charts de-



2. Eye well set. Prominent and oval shaped, rather than almond shaped. 3. Buccinator, maxillo-labialis, and zygomatico-labialis sharp. 4. Jaw recessive, so much so that upper and lower teeth would not meet if mouth were closed. 5. Curious ridges at parotoid groove, like creases.
- B. *Body*. 1. Neck. Mastoido-humeralis good. Base of neck excessively creased. Inferior part of lateral face of neck also creased, even though neck is arched backwards and this part should be taut. 2. Withers well formed. 3. Xiphoid vein begins above elbow as on *W. VI Fig. 11* above, and stems right across the stifle fold. 4. Hollow of flank not very subtly worked. A hard ridge describes the last rib of the thorax, while the patella is bounded by an incised line along its upper outline. 5. Croup is longer than it should be, adds much to the horizontal dimension of the buttock. 6. As a result, the tail is low set.

The unusual position of the animal may be the direct cause of the latter two discrepancies. In fact, they actually do not detract from the otherwise beautiful composition.

- C. *Members*. 1. Anterior. a. Complete outline of shoulder blade distinguishable. b. Triceps are incorrectly baggy. Should actually be smooth, since member is off the ground. c. Fore-arm muscles tense. d. Carpus especially good. The displacement of bones in different positions understood. e. Cannon does not show the splints, and is too thick.
2. Posterior. a. Very little detail in thigh and buttock. b. Patella not very well done. Remainder of member in a bad state of preservation.

## II. PROPORTIONS.

The head is a little long in comparison to the neck and the distance from the point of the shoulder to the top of the withers, the latter two are 0.250 m., while the head is 0.260 m. The trunk is in approximately correct proportion, 0.260 m. from the top of the shoulder to the haunch and 0.240 m. from the back to the inferior limit of the abdomen. The parts of the posterior member are in good proportion to each other, 0.245 m. from the stifle to the hock and 0.250 m. from the hock to the ground. As is usual throughout the

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scribing the action of the various gaits. His general conclusions are that the sculptor did about as well as the camera in catching the momentary stages of movement.



frieze, the distance from the xiphoid vein to just above the fetlock is long, in this case about 0.290 m.

### III. GAIT.

The horse is rearing up to a full stop, and is supporting his whole weight for the moment on the right hind foot.

### Analysis Example VIII, Parthenon Frieze (Fig. 43)

(Slab XII, West, pl. 69, fig. 23)

#### I. ANATOMY.

- A. *Head*. 1. Very shallow supraorbit, as it should be in a young horse. 2. Eye prominent. 3. Not much bony structure rendered, probably because of position of head, and because total depth of relief at bottom is less than at top.
- B. *Body*. 1. Neck is bent completely over, so that head is in contact with cannon. The mane grows out from far down on the lateral face of the neck. The locks are all closely parallel and distinct from each other. This type of mane is unique on the whole frieze. 2. The withers are undeveloped. 3. The trunk, which is covered by a standing figure, seems rather long. 4. Muscles of breast correctly displaced according to position of neck and members.
- C. *Members*. 1. Anterior. a. Outline of shoulder not very distinct. b. Point of shoulder barely visible, correct and suited to position of member. c. Inside face of the forearm reveals fine skin and veinous structure. d. Cannon shows bone, but splints are only barely visible.
2. Posterior. a. Loose flesh hangs over knee cap. b. Inside face of gaskin reveals fine loose skin with veins beneath. c. Cord of the hock not too sharp, owing to position. Remainder is as on anterior.

#### II. PROPORTIONS.

The head and the neck are about the same size, 0.250 m. and 0.260, respectively. The distance from the point of the shoulder to the top of the withers is about 0.270 m., while the length of the trunk, from the top of the shoulder to the haunch is about 0.310 m. The dimensions of the members are well over a head, as would be the case on a young horse. The distance from the stifle to the hock is 0.30 m., and from the hock to the ground 0.285 m., and from the xiphoid region to the fetlock about 0.310 m.

## III. GAIT.

The horse is at rest with all four feet on the ground.

Analysis Examples IX, Parthenon Frieze (Fig. 44)  
(Slab XLII, North, pl. 60, near fig. 133)

## I. ANATOMY.

(Only the forequarters are visible.)

- A. *Head*. 1. Zygomatic ridge not bold enough. 2. But venous structure well rendered. 3. Axis of eye is askew, outside corner rounded so that upper and lower lids do not come to a juncture. 4. Head is attached in an impossible position. 5. Limit of mandible is a ridge between two parallel depressions. 6. Because of position of head, parotoid groove is not in evidence.
- B. *Body*. 1. Neck well arched. 2. Withers well elevated. 3. Three parallel lines incised behind the anterior member at the xiphoid region. 4. Breast in almost three-quarter view, revealing point of shoulder and sterno-humeralis muscles.
- C. *Members*. 1. Anterior. a. Outline of shoulder indistinct. b. Point of shoulder prominent. c. Triceps barely visible. d. Forearm covered with fine grained skin which reveals the venous structure, especially on the inside face. e. Carpus normal. f. Cannon good. Bony part distinct from suspensory ligament, but the splints not there. g. Pasterns short and thick.
2. Posterior. Not available for study.

## II. PROPORTIONS.

The head is about 0.250 m. long, while the neck is 0.255 m. The distance from the point of the shoulder to the top of the withers is about 0.280 m. This excessive length may be partly due to the foreshortening necessary in order to show the depth of the body, which at this point is not in true profile. The distance from the back to the inferior limit of the abdomen is about 0.250 m. In common with the anterior members of all the horses already observed, it is long too, about 0.320 m.

## III. GAIT.

The animal is standing still with all four feet on the ground.

## Analysis Example X, Parthenon Frieze (Fig. 45)

(Slab XLI, North, pl. 59, fig. 129)

## I. ANATOMY.

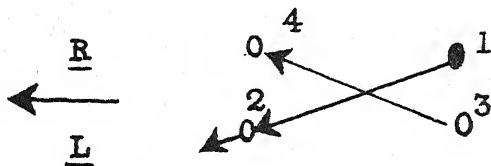
- A. *Head.* 1. Limits of mandible scarcely visible. 2. Eye an incised oval, not correctly shaped. 3. Atlas bone not visible. Veinous quality seen under skin. 5. Round cutting at the corner of the mouth, place for inserting reins.
- B. *Body.* 1. Whole length of head in contact with neck. The dorsal trapezius, base of neck near withers, strongly creased although neck is bent forward. 2. Xiphoid vein cord-like, and not really under skin. 3. Fullness of abdomen indicated by means of very shallow relief. 4. Withers well elevated. 5. Curious creases on breast, probably meant to be the result of the member being raised.
- C. *Members.* 1. Anterior. a. Point of the shoulder clearly shown in low relief. b. Outline of shoulder visible despite very low relief. c. Triceps necessarily faint because of shallow relief. d. Muscularity of forearm well marked. e. Carpus good, shows displacement of bones when member is in action. f. Cannon bone distinct from suspensory ligament and splints.
2. Posterior. a. Little muscularity in thigh and buttock shown because member is raised. b. Same for gaskin. c. Realistic creasing at juncture of gaskin and buttock on member which is supporting and propelling the body. d. Thin skin and veinous structure on inside face of gaskin well marked. e. Hock is good, on adjacent horses. f. Cannon shows bone, and ligament clearly.

## II. PROPORTIONS.

The head is about 0.240 m., while the neck is one centimeter more, 0.250 m. Because the anterior member is extending, the distance from the point of the shoulder to the top of the withers is very long, about 0.280 m. The trunk is about 0.250 m. in either direction. This measurement is only approximate because the rider covers the top of the shoulder and the back. The posterior member is exactly one head for both parts, 0.240 m. The anterior member is long, measuring about 0.30 m. from the xiphoid vein to just above the fetlock.

## III. GAIT.

This horse has probably just begun to move. The gait seems to be a criss-cross one like a trot. The right hind foot is on the ground supporting the weight and driving the body forward. The left anterior member is extending and about to come down. The other two members are raised well off the ground, the anterior one much higher.



Analysis Example XI, Parthenon Frieze  
(Slab XXXI, North, pl. 54, fig. 96)

## I. ANATOMY.

- A. *Head*. 1. Well attached. Parotoid groove and atlas bone distinct. 2. Zygomatic ridge bold. 3. Lower jaw too recessive. 4. Orbicularis of lips well modeled. 5. Chin nicely defined. 6. Zygomatico-labialis, buccinator, and maxillo-labialis indicated. 7. Supraorbit well modeled.
- B. *Body*. 1. Neck short, broad, and well arched. Base of neck near withers creased. Incised line marks division between neck and mane. 2. Mane haphazardly worked. Consists of a flat band following the outline of the neck, with random incisions to indicate hair. 3. Withers well elevated. 4. Hollow of flank not very subtle. There is a depression just behind the last rib of the thorax which drops too quickly. 5. Xiphoid vein begins above elbow on the triceps, and undulates to the inguinal region. 6. Tail badly set, sprouts from the buttock.
- C. *Members*. 1. Anterior. a. Point and outline of shoulder very clear. b. Triceps in correct configuration, smooth. c. Elbow in correct position for extending member. d. Carpus normal. e. Cannon does show the splints very clearly.
2. Posterior. a. Semi-tendinosus and semi-membranosus relaxed, for member is lifted. b. Veinous structure clear on inside face of gaskin. c. Hock excellent, shows cord and tuberosity, and displacement of bones very clearly. d. Cannon

good, shows splints very clearly. e. Fetlock, pasterns, and foot good. Position different according to position of different movement of members.

## II. PROPORTIONS.

The head is about 0.250 m. long, while the neck is two centimeters shorter, 0.230 m. The anterior member, in extending, makes for the long measurement of 0.280 m. for the distance from the point of the shoulder to the top of the withers. The trunk is about in correct proportions, 0.250 m. in both directions. The distance from the stifle to the hock, and from the hock to the ground is in both instances about 0.240 m. The distance from the xiphoid vein to above the fetlock is approximately 0.290 m.

## III. GAIT.

The weight is supported by the right hind member entirely. The left hind member is about to come down. Both anterior members are raised, but the right is approaching the ground. The gait is not quite a gallop, more a canter. From the position of the members, the body cannot be thought of as about to be completely suspended in air.

## Analysis Example XII, East Pediment, Selene's Horse

(Fig. 46)

### I. ANATOMY.

*Head.* 1. The head is somewhat better attached than generally on the frieze. The parotoid groove is a definitely defined depression, in the upper portion of which the atlas bone stands out prominently, thus making for a better and more organic integration of head and neck. 2. Nostril is very realistic. Crescent-shaped and correctly located on the extremity of the nose. The skin of the rim of the nostril folds back realistically revealing its cartilaginous substructure, and is differentiated from the tissues adjoining it. 3. The lower jaw is still recessive as was the case on the frieze. 4. The ears are well placed, and short. 5. Eyes are well situated and prominent. Upper lid is carved so that it can close over the eyeball. Lower lid shallower. 6. Supraorbit excellent. Blends into surrounding surfaces. 7. The superior plane of the head reveals the bony character and shape of the skull. 8. Various muscles well marked. Buccinator, orbicularis, zygomatico-labialis, supernaso-labialis. The masseter

muscle over the mandible and cheek is rendered so as to give the feeling of the fine skin and hair. It is well attached to the zygomatic ridge.

The proportions of the head are correct. The distance from the tip of the nose to the poll is 0.660 m., while the distance from the inferior limit of the mandible to the forehead through the eye is exactly 0.330.

### Analysis Example XIII, Bassae Frieze (Fig. 47)

#### I. ANATOMY.

- A. *Head*. 1. Nostril better than on Selene's horse (Fig. 46, Example XII). The crescent-shaped cartilage is very clear. 2. Lower jaw not recessive as was the case with most of the Parthenon horses. 3. Eye very prominent. 4. Masseter muscle not smooth, slightly corrugated. 5. Muscularity of face very good. 6. Brow and temples very nicely defined. Brow overhangs corner of eye slightly. 7. Same spool-like contour along temple as on Parthenon frieze. 8. Head slightly turned, obliterating parotoid groove.
- B. *Body*. 1. Neck is full and round, but seems short. 2. Croup too long, causes sweep of buttock too far posteriorly. 3. Abdomen and thorax round and full. 4. Sterno-humeralis muscles of breast full and fleshy. 5. Sweep of the inferior limit of the abdomen from the xiphoid to the inguinal region better than on the Parthenon. The curve ascends gracefully making the thorax deeper, and the vertical section from the croup through the flank to the stifle smaller. 6. Xiphoid vein branches and undulates, but not so far as the inguinal region.
- C. *Members*. 1. Anterior. a. Point of the shoulder is prominent, but too well padded with flesh. Is snub-nosed. b. Outline of the shoulder seen, but is up too high. c. Triceps good, suited to action of member. d. Forearm shows extensors of phalanges. e. Carpus not very detailed. Remainder missing. 2. Posterior. a. Muscularity of thigh and buttock not naturalistic. Indicated by means of corrugations. b. Muscles of gaskin look like human biceps. c. Hock not especially detailed. Cord not very distinct. Displacement of bones not indicated. d. Cannon does not show splints. Is a little too long and thick. e. Fetlock good. Footlock of left member touches ground. f. Pasterns short and thick. g. Foot a little too big.



## II. PROPORTIONS.

The proportions seem more or less correct. The head and neck are about equal, whereas the distance from the point of the shoulder to the top of the withers is a little more than one head. The trunk is a little too full, and actually a little more than one head in the vertical dimension. The distance from the stifle to the hock is about one head. The cannon of the outside member is long, thus the distance from the hock to the ground in that instance is a little over a head.

## III. GAIT.

Supported by both posterior members, the horse is rearing up in agitation.

## Analysis Example XIV, Bassae Frieze (Fig. 48)

## I. ANATOMY.

- A. *Head*. 1. Supraorbit very good. 2. Veinous and bony structure as well done as on *Example XIII* (Fig. 47), but not so sharp. 3. Eye very faint. Lid covers eyeball. This is the first example of a closed eye. 4. Lower jaw is sufficiently long.
- B. *Body*. 1. Neck contorted and sharply creased on inferior face. Well attached to trunk, considering the position. 2. Withers elevated. 3. Croup too long. (Some restorations on buttock seem correct.) 4. Xiphoid cartilage a single stem from which vein emanates.
- C. *Members*. 1. Anterior. a. Point of the shoulder is thrown high because of the position of the member. b. Not well attached to trunk, difficult position. c. Triceps smooth. d. Forearm not particularly distinguished. e. Carpus too big, artist does not understand shape in that unusual position. f. Cannon thick, bone and ligament desultorily differentiated. Ligament too heavy. g. Pasterns and foot realistically snapped back.
2. Posterior. a. Gaskin too small. Dwarfed by buttock. b. Femoral biceps shown slightly tensed. c. Stifle fold not realistic at all. d. Hock better than on *Example XIII* (Fig. 47). Cord and tuberosity clear. e. Cannon better here too.

## II. PROPORTIONS.

The head is equal to the neck, while the distance from the point of the shoulder to the top of the withers is more than

one head. The distance from the top of the shoulder to the haunch is one head, while the vertical measurement is a little more. The distance from the stifle to the hock, and from the hock to the ground is in each case one head. The measurement from the xiphoid region to the fetlock cannot be accurately measured because of the position.

### III. GAIT.

The horse is falling down. The anterior members are realistically buckled under, the pasterns are snapped back, while the posterior portion of the body is held up, but is giving way slowly, by the relaxation of the hind members.

Analysis Example XV, Syracusan Dekadrachm, after 413  
B. C. (Fig. 49)

(Richter, *Animals*, fig. 75, from the collection of E. T. Newell,  
New York)

#### I. ANATOMY.

- A. *Head*. 1. Bony structure clear. Mandible and zygomatic ridge. 2. Supraorbit discernible. 3. Orbicularis of lips strongly marked. 4. Parotoid groove distinct. 5. Ear well set and realistically thrown back.
- B. *Body*. 1. Neck. Muscles integrated with action. The proper elevation of the shoulder is distinguished from the sternomaxillaris and the mastoido-humeralis. 2. Back and loins are long in comparison to croup. 3. Stifle fold is better than anywhere on the Parthenon frieze. Despite the size, the cutaneous fold stretches across the flank revealing the contour of the abdomen, and outline of the femur of the thigh. 4. Flank well modeled. 5. Sweep of the inferior limit of the abdomen to the inguinal region describes a graceful ascending curve. 6. Tail well set, high on croup.
- C. *Members*. 1. Anterior. a. Outline and point of shoulder distinct and correctly located. b. Elbow suited to action of member. c. Remainder not clear, but pasterns realistically snapped back.  
2. Posterior. a. Femoral biceps slightly flexed. b. Muscles of buttock clear. c. Muscles of gaskin well marked. d. Cord and tuberosity of hock clear. e. Pasterns snapped back.

#### II. PROPORTIONS.

The proportions are very good indeed. The neck is one head. For the first time the distance from the point of the



shoulder to the top of the withers is also one head. The trunk is slight, less than one head in the vertical dimension, and just about a head in the horizontal. The distance from the stifle to the hock and from the hock to the ground are each one head. The distance from the xiphoid vein to just above the fetlock is about one head probably, or just a little more. On the Parthenon frieze this dimension was always considerably more.

### III. GAIT.

The horses are in a full gallop, and caught at the moment of complete suspension in the air. All four horses are in this position. The posterior members have just driven the body forward, while the anterior members are about to extend. The pasterns of the anterior are not snapped back as far as those of the posterior members.

## 4. ANALYSES, CHAPTER VI

### THE FOURTH CENTURY, 400-300 B. C.

#### Examples I-VIII, Figs. 50-59

#### Analysis Example I, Nereid Monument, c. 410-390 B. C.

(Fig. 50)

##### I. ANATOMY.

- A. *Head.* 1. Eyelids rendered as ridges. 2. Eye socket scarcely protrudes at all. 3. Masseter muscle hard and smooth, distinguishable from other surfaces. 4. Parotoid groove marked by a depression, but surface of cheek and neck in the same plane. 5: No atlas bone. 6. Ear not well set, too low. 7. Supraorbit a shallow depression very crudely cut.
- B. *Body.* 1. Almost no modeling in the neck. 2. Mane very perfunctorily rendered. 3. Abdomen very flat, and in lower plane than posterior member. 4. No xiphoid vein, present elsewhere on frieze.
- C. *Members.* 1. Anterior. a. Outline of shoulder evident. b. Triceps present. c. Carpus not especially good, outline normal, but displacement of bones not indicated. d. Ligament and bone of cannon distinguishable.  
2. Posterior. a. Outline of the femur of the thigh very crude indeed—cut back sharply from the outer surface.

b. Hock showing cord and tuberosity normal. c. Cannon as on anterior. d. Semi-tendinosus and femoral biceps in full play.

## II. PROPORTIONS.

The extremity of the head is missing, but half a head, that is, the distance from the mandible to the forehead, is 0.130 m. The neck is rather short, 0.230 m. From the point of the shoulder to the top of the withers it is 0.250 m., or about one head. The trunk measures one head in both directions, 0.250 m. The distance from the xiphoid region to just above the fetlock can be estimated at 0.330 m., it is thus too long, a tendency noted throughout the fifth century. The posterior member measures 0.230 m. from the stifle to the hock, and approximately 0.220 m. from the hock to the ground.

## III. GAIT.

The horse is rearing nervously in the heat of battle. The hock of the left posterior member actually touches the ground.

## Analysis Example II, Stele of Dexileos, 394 B. C. (Fig. 51)

### I. ANATOMY.

- A. *Head*. 1. Eye is large and round, but does not protrude goiterously as on Selene's horse. 2. Eyelids modeled, upper disappears under brow, and can close over the eye. 3. Brow and temples carefully modeled. 4. Supraorbit a very subtle depression, falls away from elevated portions gracefully. 5. Ear thrown back realistically, concha opening turned posteriorly. 6. Inferior maxillary bone realistically outlined on side of face. A ridge limits the parotoid groove. 7. Zygomatic ridge clear, masseter muscle well attached to it. 8. Parotoid groove not well integrated because of unnatural position of head. 9. Forelock grows realistically over poll. Is of different texture from the mane. 10. Extremity of head missing.
- B. *Body*. 1. Mastoido-humeralis of neck full and well marked. 2. Sterno-humeralis muscles of breast full and fleshy. 3. Withers well elevated. 4. Back and loins seem a little too short for the general proportions of the trunk. 5. Croup too long. This same discrepancy occurs on the Parthenon (Figs. 38-45) and Bassae friezes (Figs. 47-48) in those cases where the horses are rearing up. 6. Abdomen full and round. 7. Xiphoid vein no longer an element of decoration, flows out

of the fleshy fold over and behind the elbow. 8. Hollow of flank very realistic, filled by femur of the thigh, which is advanced.

- C. *Members.* 1. Anterior, a. Point of shoulder good, very realistic. b. Triceps good. Fine veinous structure just underneath fine skin evident. c. Carpus bones differentiated according to position of member. Remainder of member missing.

2. Posterior. a. Stifle fold very good. b. Femur of thigh revealed. c. Semi-tendinosus and femoral biceps in full play. d. Gaskin muscles good. e. Hock with cord and tuber calcis good. f. Cannon reveals head of rudimentary metatarsal bone, ligament, and splints. In excellent proportion to remainder of member. g. Fetlock joint very realistic anatomically. Better than on Parthenon (Figs. 38, 39). Sesamoid bone sensed under the skin behind the joint. h. Footlock modeled, a tuft of hair. i. Pasterns are thick and solid. Are extended. j. Ring of short hairs crown the top of the coronet, lapping over onto foot.

## II. PROPORTIONS.<sup>1</sup>

The extremity of the head is missing. The distance from the mandible to the forehead is 0.16 m. The neck and the distance from the point of the shoulder to the top of the withers are both 0.34 m. The trunk is somewhat reminiscent of fifth century proportions, being a little long. It measures 0.380 m. in the horizontal dimension and 0.345 m. in the vertical. The distance from the stifle to the hock is 0.350 m. and 0.330 m. from the hock to the ground. The anterior member is missing.

## III. GAIT.

The horse is rearing above a fallen man, and is reined in sharply by the rider.

Analysis Example III, Amazon on Horseback, Temple of Asklepios, Epidauros, c. 380 B. C. (Fig. 53)

### I. ANATOMY.

A. *Head.* Missing.

B. *Body.* 1. Upper portion of neck missing. Mane not very detailed. Trapezius creased. Mastoido-humeralis pronounced.

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<sup>1</sup> Measurements given here were taken directly from monument in the Kerameikos, Athens, in August 1939.

2. Withers well elevated. 3. Back and loins in good proportion. 4. Croup too long. This quality seen during the fifth century on those horses rearing up. 5. Tail not well set, sprouts from buttock. 6. Xiphoid vein realistic. 7. Hollow of flank crudely rendered, yet reveals last rib of thorax. 8. Abdomen full and round. 9. Breast muscles full and fleshy, sterno-humeralis correctly displaced.

C. *Members.* 1. Anterior. a. Point of the shoulder pronounced. b. Outline of shoulder blade visible. c. Triceps full and baggy, would indicate that the foot should have been on the ground. Fine veinous skin modeled over this area. Remainder of member missing.

2. Posterior. a. Point of the haunch well marked. b. Femur of the thigh revealed. c. Femoral biceps, semi-tendinosus, in full play. Remainder missing.

## II. PROPORTIONS.<sup>2</sup>

Both head and neck are missing. The distance from the point of the shoulder to the top of the withers is about 0.250 m. The trunk is in good proportion, 0.280 m. from the top of the shoulder to the haunch, and 0.275 m. from the back to the inferior limit of the abdomen. No measurements are available for the members because the extremities of all are missing. It is interesting to note that the distance from the stifle to the top of the croup is about 0.255 m., and from the point of the haunch to the point of the buttock 0.260 m. These dimensions vary in different horses, but are usually a little less than one head. It may thus be assumed that the posterior member probably measured the same as the trunk, about 0.280 m. from the stifle to the hock, and from the hock to the ground.

## III. GAIT.

If the right anterior member is supposedly on the ground, then it is hard to reconcile the long croup, which would seem to indicate that the animal was rearing up. Judging from the angle of the rider, who leans over almost touching the horse's neck, we can safely assert that the animal was rearing up. On the other hand, if the rider is in the midst of a fight, the right arm must be reconstructed raised, holding

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<sup>2</sup> Measurements given here were obtained directly from monument in the National Museum, Athens, in August 1939. The measurements given below for *Example IV* were obtained at the same time.

a weapon ready to strike. Then it is quite possible that she is leaning that far over while the horse proceeds along on an even keel. The latter conclusion seems tenable in the light of the modeling of the triceps, which would indicate that the right anterior member was on the ground. Since this is a free standing figure, support is necessary anteriorly. The play of the thigh and buttock muscles indicate that the body was meant to be shown moving forward swiftly. The left anterior member was probably in mid-air advancing. The point of the shoulder is thrown far forward on the left side, that is, farther forward than on the right. The sterno-humeralis muscles of the left side are flexed, while on the right side they are relaxed somewhat, at least they are not so prominent as on the left.\*

Analysis Example IV, Akroterion, no. 156, Temple of Asklepios, Epidauros, c. 380 B. C. (Fig. 54)

I. ANATOMY.

A. *Head.* Missing.

B. *Body.* 1. Only a small part of neck extant. Mane well worked. 2. Withers well elevated. 3. Back and loins short. 4. Croup in correct proportion. 5. Xiphoid cartilage and vein realistic. 6. Extremely flat chested horse. Distance through shoulders from left to right is 0.16 m., whereas distance through point of haunch from left to right is 0.21 m. In other words, the planes of the forequarters do not meet the planes of the hind quarters where they are separated by the rider, and are 0.05 m. apart. In plan the shape of the horse tapers toward the anterior portion. 7. Breast muscles well worked.

C. *Members.* 1. Anterior. a. Point of shoulder well marked. b. Outline of shoulder evident. c. Triceps bold. Remainder of member is missing.

2. Posterior. a. Femoral biceps and semi-tendinosus well marked. Remainder not worked, hidden by "water" or "clouds" (?).

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\*It would seem then that the horse in the National Museum, Athens, should be mounted in a less diagonal position than at present, and all the casts, especially those in the Metropolitan Museum, New York, ought to be likewise remounted. That would make it possible for a member of about 0.280 m., perhaps slightly more, measured from the xiphoid region to just above the fetlock, to come in contact with the ground.

## II. PROPORTIONS.

The head is missing and only part of the neck is extant. The distance from the point of the shoulder to the top of the withers is 0.280 m. The trunk measures approximately 0.250 m. in both horizontal and vertical dimensions. No other measurements are possible because the anterior members are missing, and the posterior not worked.

## III. GAIT.

The horses are supposed to be partially submerged, either in clouds or water. In the case of the horse moving from left to right, the right anterior member was probably raised and outstretched, while the left was straight down with the extremity submerged.

Analysis Example V, Forepart of a Horse from the Colossal Quadriga Group by Pythios, 353-350 B. C. (Fig. 55).

(Smith, *Catalogue*, Vol. II, p. 93, no. 1002, pl. XVI.)

## I. ANATOMY.

- A. *Head*. 1. Rather small and square. The distance from the mandible to the forehead is about three-quarters of the total length. 2. Eye socket protrudes too much. 3. Some veinous structure evident on the cheeks. 4. Salient muscles, buccinator, zygomatic-labialis, supernaso-labialis are all clear. 5. The atlas bone is prominent. 6. The attachment of the head good, but incisions mark the creasing at the throat. 7. Cheeks full and fleshy, curved rather than plane surfaces. 8. Nostril fully distended with the muscularity well defined.

- B. *Body*. 1. Neck is stubby, rather short in proportion to thickness. Mastoido-humeralis very strongly marked. 2. Sternohumeralis muscles of breast very full.

The whole appearance is rather stocky, with a minimum of detail throughout, perhaps because of the architectonic purpose. Used as a crowning ornament on the very pinnacle of the pyramid.

Analysis Example VI, Amazon on Horseback, 353-350 B. C.

(Fig. 56) (Smith, *Catalogue* II, no. 1015, pl. XVII)

## I. ANATOMY.

- A. *Head*. 1. Mouth is open. Should actually be closed. Even



tongue is modeled. Designed to convey expression of agitation. 2. Maxillo-labialis, buccinator, zygomatico-labialis, all strongly marked, actually exaggerated. 3. Nostril fully distended. 4. Bony structure about temples and forehead too prominent. 5. Head well attached, is thrown back and up. 6. Ears thrown back.

- B. *Body*. 1. Neck. Mane short, but forelock thrown back, like ears. Atlas bone evident. Mastoido-humeralis and other neck muscles relatively quiet. 2. Back and loins seem a little long. 3. Croup in good proportion, but is rather flat, and forms a sharp angle, rather than a curve, where it joins the buttock. Thus the forward moving diagonal line of the trunk is accented. 4. Three ribs of the thorax very strongly marked, just behind the anterior members. Aids in giving the impression that the horse is breathing hard. Marks the first time this detail is included in sculpture. 5. Xiphoid cartilage and vein boldly cut. 6. Stifle fold over-stretched on account of exceedingly exaggerated extension backward of posterior member. 7. Tail very well set, and finely arched. 8. Hollow of flank very subtle, not so deep as on other slabs where the members are less extended.
- C. *Members*. 1. Anterior. a. All shoulder muscles strongly marked, subspinitus, long abductor of the forearm, sternoprescapularis all appear for the first time. b. Outline of shoulder including spine clear. c. Triceps a little too bold. Remainder of member missing.
2. Posterior. a. Femoral biceps strained. b. Semi-tendinosus in full play. Remainder of member missing. But both feet are on the ground, far to the rear of the body.

## II. PROPORTIONS.\*

The head is 0.190 m., the neck 0.180 m., while the distance from the point of the shoulder to the top of the withers is approximately 0.175 m. The measurements of the trunk can only be approximated because of the rider. The distance from the top of the shoulder to the haunch is about 0.190 m., and from the back to the inferior limit of the abdomen about 0.180 m. The distance from the stifle to the hock is approximately 0.180 m., and from the hock to the ground 0.190 m. The anterior member is missing.

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\* The measurements given were taken from the casts in the Metropolitan Museum, New York.

## III. GAIT.

This is a completely impossible position, yet the movement seems rational. If the artist meant to imply a gallop, then all the members should be more nearly together preparatory to being under the horse during the interval of complete suspension. If the gait is meant to be a jump, then the horse is stretched out too far, and will only fall to the ground in the next moment. Yet this feeling is not conveyed to the spectator at all. The horse is straining forward with all his strength in a manner which seems quite plausible, until one begins to analyse the movement and to note the disposition of the members in relation to the body.

Analysis Example VII, Bryaxis Base, c. 350 B. C. (Fig. 57)

## I. ANATOMY.

- A. *Head*. Badly weathered, but the salient features can be made out. It is well attached. Parotoid groove a clearly defined depression. Cheek and zygomatic ridge clear.
- B. *Body*. 1. Neck, mastoido-humeralis evident. 2. Back and loins and croup seem a little too short. But are in good proportion to each other. 3. Tail very well set, finely arched. 4. Trunk seems too deep in relation to length.
- C. *Members*. 1. Anterior. a. Point and outline of shoulder clear. b. Action of the triceps well understood. Remainder of member is not very detailed, small size, but in good outline revealing the splints, ligament, and bone in cannon. 2. Posterior. a. Point of the haunch well marked. b. Muscles of thigh and buttock very much exaggerated in relation to movement. c. Femoral biceps and semi-tendinosus strongly bunched.

II. PROPORTIONS.<sup>5</sup>

The head is about 0.075 m., the neck 0.08 m., and the distance from the point of the shoulder to the top of the withers about 0.075 m. The trunk seems a little short, although it measures 0.075 m. from the top of the shoulder to the haunch, and 0.085 m. from the back to the inferior limit of the abdomen. The anterior member measures about 0.085 m., about a head, or just a little more, which was not

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<sup>5</sup> Measurements given were obtained directly in the National Museum, Athens, August, 1939.



the case during the fifth century. The posterior member measures 0.09 m. from the stifle to the hock and 0.08 m. from the hock to the ground.

### III. GAIT.

It is a criss-cross gait with the raised members lifted high. This does not seem to be a natural movement, but one which is taught the animal for ceremonial purposes, such as processions and the like.

### Analysis Example VIII, Alexander Sarcophagus, 325-300 B. C. (Fig. 58)

#### I. ANATOMY.

- A. *Head*. 1. Eye very prominent, somewhat reminiscent of colossal horse from Mausoleum (Fig. 55). Lower lid too flat. 2. Muscularity generally quieter than on Mausoleum frieze. Buccinator, zygomatico-labialis, maxillo-labialis. 3. Nostril is realistic, distended, reveals cartilaginous character of rim. 4. Ears well set, varied positions as aid to expression understood.
- B. *Body*. 1. Neck short and rather wide at base. Mastoido-humeralis well marked. 3. Withers elevated. 4. Trunk very full, vertical dimension a little larger than horizontal. 5. Croup in good proportion. Croup of horses rearing up in good proportion, and well integrated to loins and back. 6. Hollow of flank well done.
- C. *Members*. 1. Anterior. a. Varying position of scapulo-humeral articulation, point of shoulder, well understood. b. Muscularity of shoulder less marked than on Mausoleum, yet working of triceps well understood. c. Carpus, cannon, etc. well worked.
2. Posterior. a. Working of femoral biceps, semi-tendinosus, movement of the femur of the thigh, all well understood. b. Tuberosity and cord of hock well rendered. c. Cannon reveals splints, ligament, and bone. Remainder normal.

#### II. PROPORTIONS.

The head seems a little too small for the horse, but is well shaped and in good outline. The distance from the mandible to the forehead is a little more than half the total length of the head. The neck is generally about one head, never more, and sometimes a little less. The distance from the point of the shoulder to the top of the withers varies from

one head to slightly more, depending on the extension of the anterior member. The trunk is approximately one head from the top of the shoulder to the haunch, and a little more from the back to the inferior limit of the abdomen. The anterior member is in all cases a little more than one head from the xiphoid region to just above the fetlock, which may be partially due to the frequent extension of that member in air. The posterior member is approximately correct, in every instance it is one head from the stifle to the hock, and from the hock to the ground.

### III. GAIT.

All the horses, except for the dying one, are rearing up in agitation in the midst of the heat of the battle. Invariably both hind feet are on the ground, while the forefeet paw the air, or take part in the fight making as if to strike the horses opposite.

## 5. ANALYSES, CHAPTER VII

### THE HELLENISTIC PERIOD, THIRD TO FIRST CENTURY B. C.

#### Examples I-II, Figs. 60-62

Analysis Example I, Helios' Horses, South Frieze of the Great Pergamon Altar, c. 180-160 B. C. (Fig. 62)

(*Altertümer von Pergamon*, III<sup>2</sup>, pl. IV)

#### I. ANATOMY.

- A. *Head*. Badly weathered. Extremity missing. 1. Zygomatic ridge very pronounced. 2. Bony structure around eyes, temples, and forehead very clear. 3. Masseter muscle hard and smooth, of different texture from the rest of the face.
- B. *Body*. 1. Neck. Skin is very creased at throat. Also over entire surface of neck. Gives effect of loose skin over hard muscles. Overdone effect. 2. Withers well elevated. 3. Back and loins describe too concave a curve, make a deep depression between withers and croup. 4. Croup in good proportion. 5. Tail very well set, well integrated with croup. 6. Hollow of flank very strongly marked. Consists of an elaborate series of depressions revealing the last rib of the thorax, femur of thigh, and point of the haunch. 7. Three ribs just behind anterior member very distinct. Better

modeling than on Mausoleum frieze (Fig. 56). Flesh and skin felt over the ribs. 8. Whole of the xiphoid region of different texture, shows a fine web of veins beneath. 9. Sterno-humeralis muscles of breast full and flexed correctly.

- C. *Members*. 1. Anterior. a. Top of the shoulder seen in outline. b. Point of the shoulder thrown forward as member is extended. c. Triceps revealed, show three parts of this mass of muscles. d. Sub-spinatus, long abductor of arm, supra-spinatus, sterno-prescapularis of shoulder, all individually marked. Total effect is as if skin were removed, revealing muscles beneath. Remainder of member missing.

2. Posterior. a. Point of the haunch very prominent. b. Femoral biceps very strongly marked. c. Semi-tendinosus clear. Remainder missing. Inside face of member reveals bony parts of the hock, cord, and tuber calcis.

## II. PROPORTIONS.

The neck is about one head. The distance from the point of the shoulder to the top of the withers is more than one head. The trunk is somewhat long, more than one head from the top of the shoulder to the haunch, and just one head from the back to the inferior limit of the abdomen. The anterior member is missing, but the posterior seems to have been in correct proportion.

## III. GAIT.

The leading horse is rearing up.

Analysis Example II, Temple of Artemis Leukophryene at Magnesia on the Maeander, after 150 B. C.

## I. ANATOMY.

- A. *Head*. 1. Rather small. Details somewhat blurred because of the weathering. 2. Salient bones and muscles discernible. 3. Head attachment normal. 4. Shape bad. Top of face concave. Muzzle too heavy, while chin and lower lip too slight.
- B. *Body*. 1. Neck seems of correct size. Mane and forelock very thick, curled, rather decorative. 2. Trunk full and round, deep in the vertical dimension. 3. Croup of right size and proportion. 4. Tail very well set.
- C. *Members*. 1. Anterior. a. Elbow sharply marked, almost like a human elbow. b. Muscles of forearm strongly marked.

c. Point of shoulder prominent. d. Splints and bone and ligament of cannon clear despite the small size.

2. Posterior. a. Buttock far too heavy. b. Gaskin muscles good. c. Cord and tuberosity of hock clear.

## II. PROPORTIONS.

The neck is approximately one head long, while the distance from the point of the shoulder to the top of the withers is a little more. The trunk measures about one head from the top of the shoulder to the haunch, and a little more from the back to the inferior limit of the abdomen. The posterior member is correct, one head from the stifle to the hock, and from the hock to the ground. The anterior member, usually shown in mid-air, seems long.

## III. GAIT.

Most of the horses are rearing up, while one or two are straining, stretching, leaping forward as was first seen on the Mausoleum frieze.

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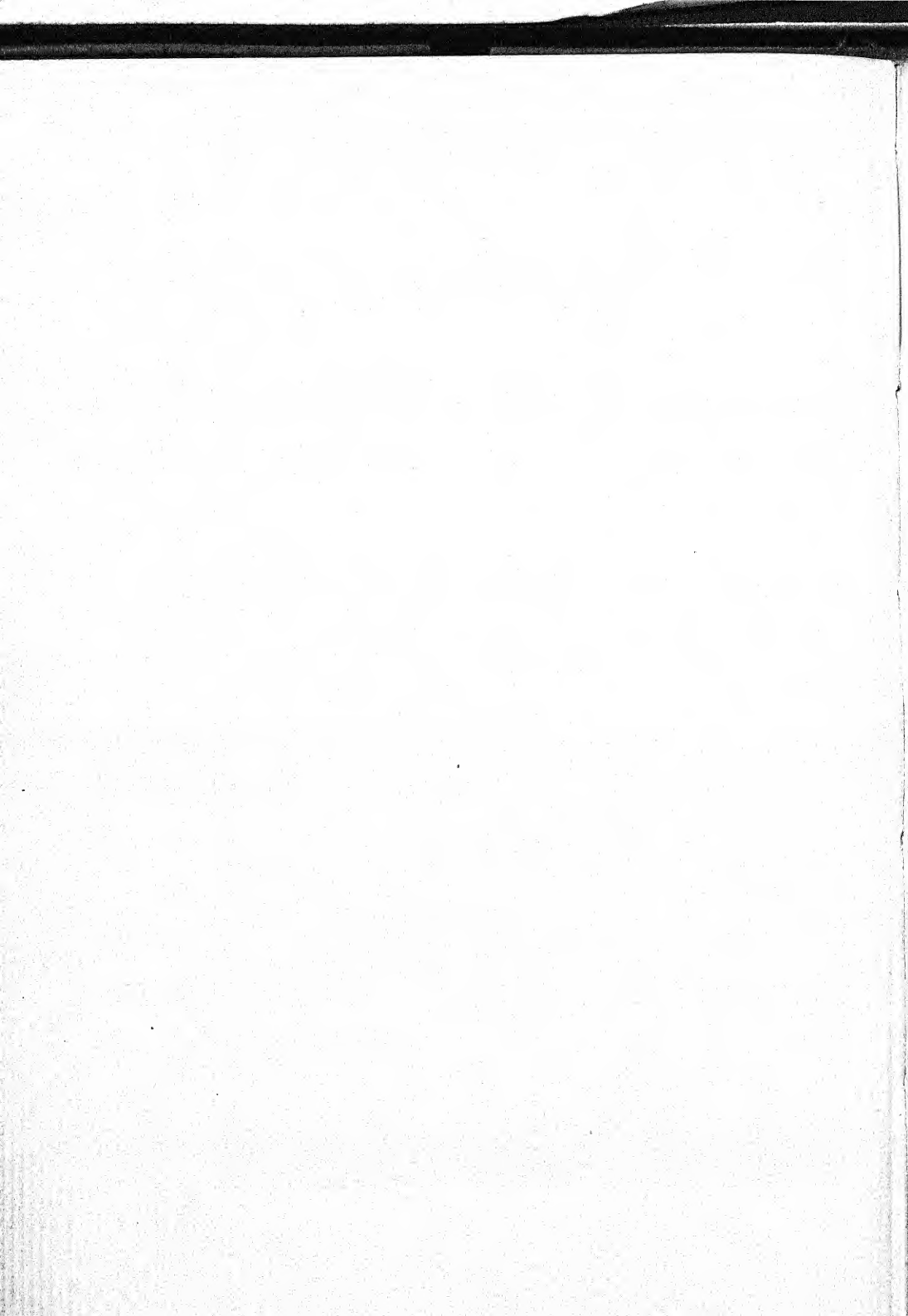
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PLATES



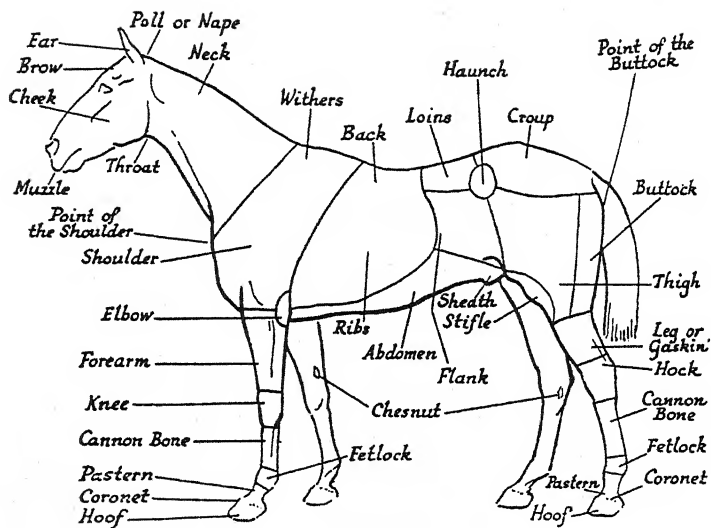


Fig. 1. Parts of the Horse.

(After Luard, *The Horse*)

Pp. viii, 135.



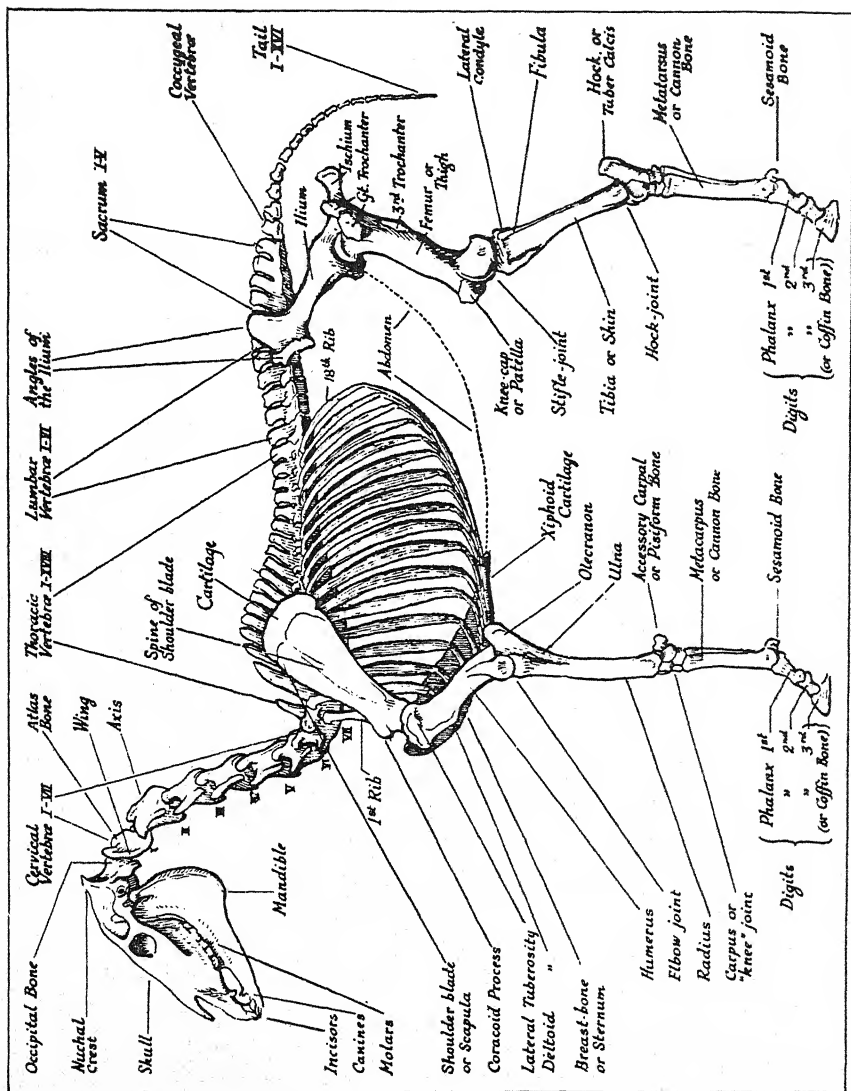


Fig. 2. Skeleton.  
 (After Inard, *The Horse*)  
 Pp. viii, 135.

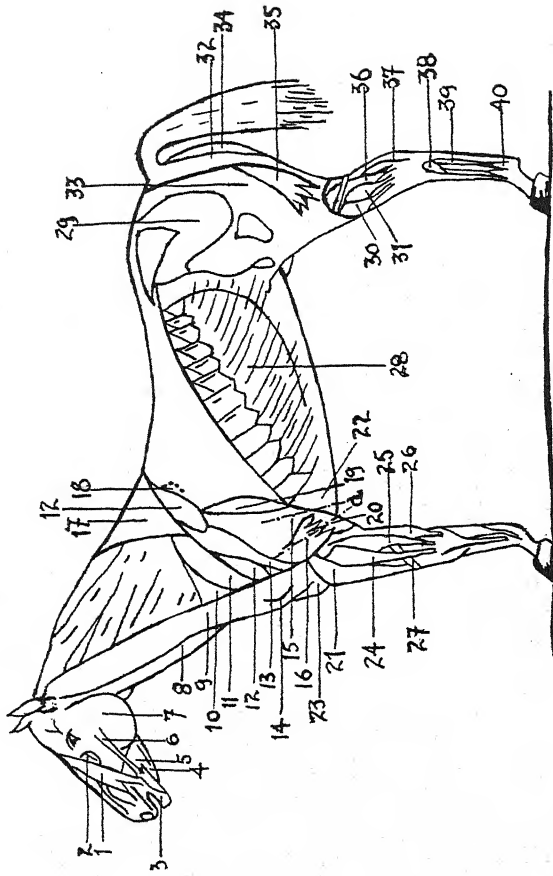


Fig. 3. Superficial Structures.

(After Goulbaux and Barrier, *The Exterior of the Horse*)

Pp. viii, 135.

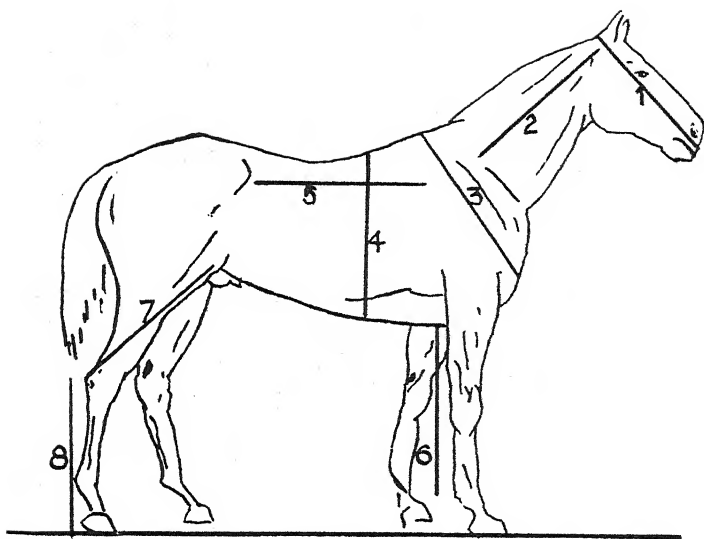
1. Supramaxillo-labialis.
2. Supermaxillo-labialis.
3. Orbicularis.
4. Maxillo-labialis.
5. Buccinator.
6. Zygomatico-labialis ("Zygomatic ridge").
7. Masseter muscle (Mandible).
8. Sternal-maxillaris.
9. Mastoido-humeralis.
10. Sternal-prescapularis.

11. Supra-spinatus.
12. Sub-spinatus.
13. Long abductor of arm.
14. Point of shoulder.
15. Great extensor of forearm.
16. Short extensor of forearm.
17. Dorsal trapezius.
18. Cartilage of top of scapula (top of shoulder).
19. Long abductor of forearm.
20. Olecranon (Elbow).
21. Anterior extensor of metacarpus.

22. Sterno-trochlearis.
23. Sterno-humeralis.
24. Anterior extensor of phalanges.
25. Lateral extensor of phalanges.
26. External extensor of metacarpus.
27. Oblique extensor of metacarpus.
28. Great oblique of abdomen.
29. Superficial gluteus.
30. Anterior extensor of phalanges.
31. Lateral extensor of phalanges.
32. Semi-tendinosus.
33. Superficial gluteus.

34. Semi-membranosus.
35. Femoral biceps.
36. Flexors of phalanges.
37. Cord of hock.
38. Head of rudimentary metatarsal bone (splint).
39. Flexor tendons of phalanges.
40. Suspensory ligament of fetlock.
- a. Triceps overlay the extensors and abductors of forearm.

NOTE: Individual muscles of a specific region are sometimes not referred to in the text. Thus all the sternum muscles are simply called breast muscles, or, sternum muscles in some instances. Likewise, muscles which appear in the forearm and gaskin, and which control the phalanges below, are simply called forearm or gaskin muscles, as the case may be. In order to avoid confusion, many superficial structures are not indicated in the diagram, since they do not figure in the monuments.



## PROPORTIONS

$$1=2=3=4=5=6=7=8$$

Fig. 4. Equal Dimensions.

(After Luard, *The Horse*)

P. 144.

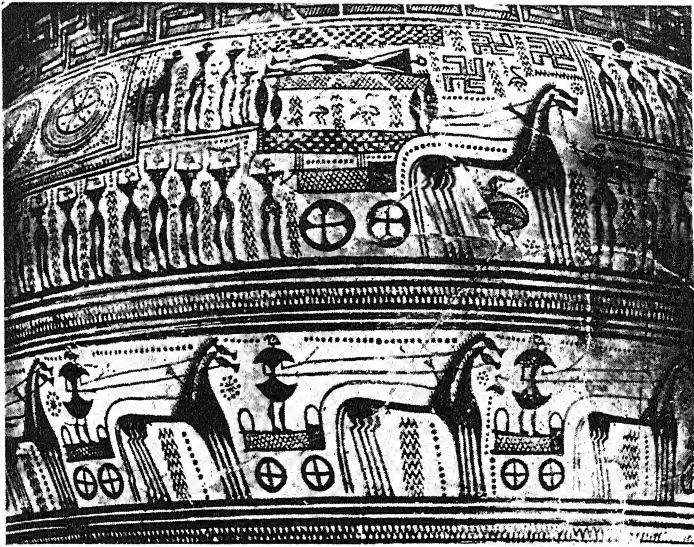


Fig. 5. Dipylon Vase. Detail.  
P. 20.

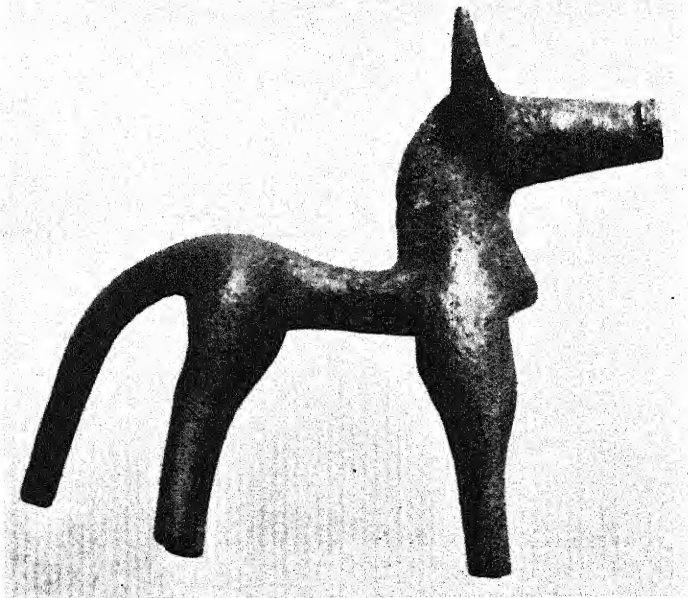


Fig. 6. Bronze. Division A, no. 1, 875-825 B.C.



Fig. 7. Bronze. Division B. Developed general type, 825-775 B. C.  
Pp. 16, 21, 22, 109.

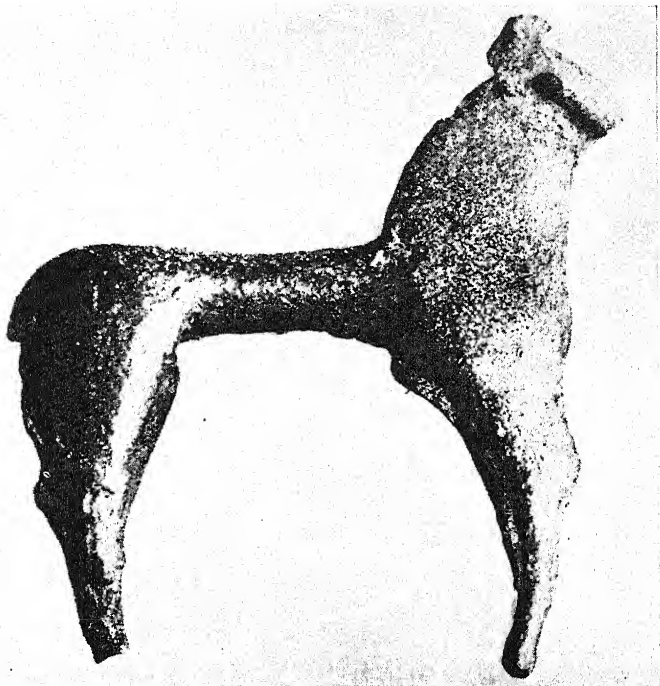


Fig. 8. Bronze. Division C, Group I, no. 1, 825-800 B. C.  
P. 22.

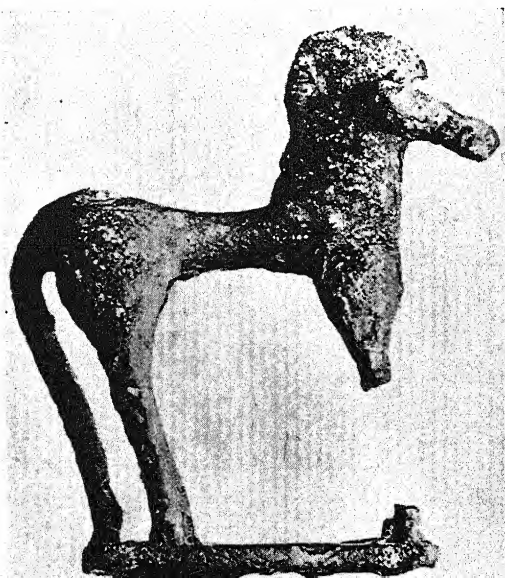




Fig. 10. Bronze. Division E, Group I, no. 2, 750-725 B. C.  
Pp. 25, 109.

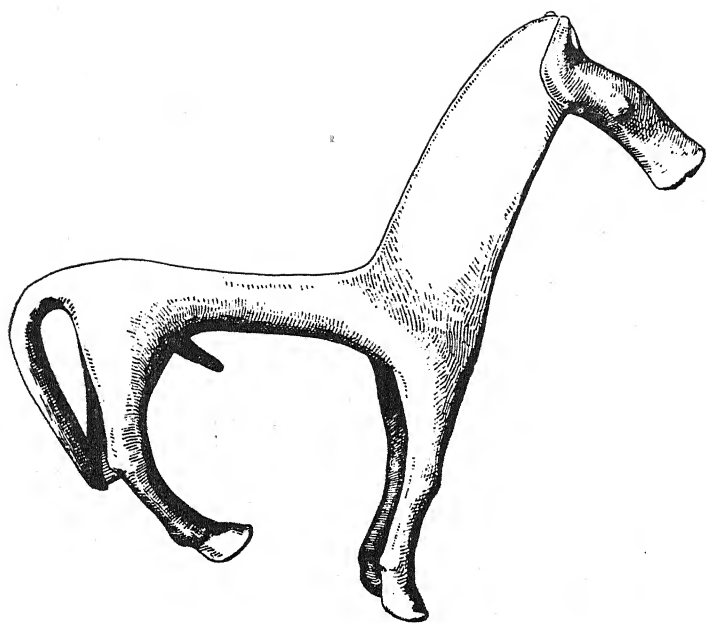


Fig. 11. Bronze. Division E, Group II, no. 4, 725-700 B. C.  
Pp. 25, 109.

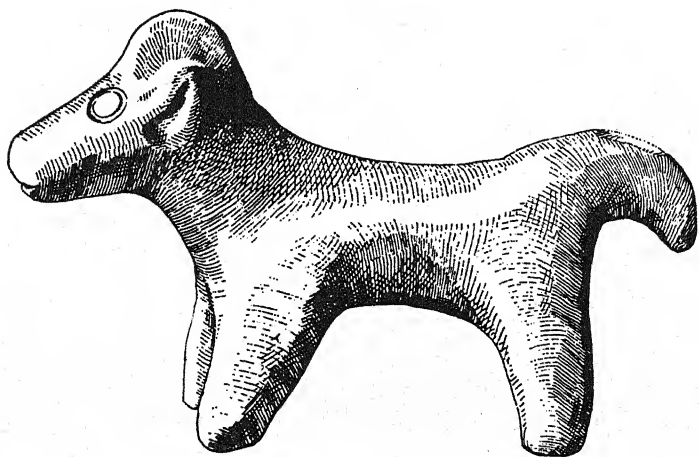


Fig. 12. Terra Cotta. Division A, no. 1, 850-800 B. C.  
P. 27.



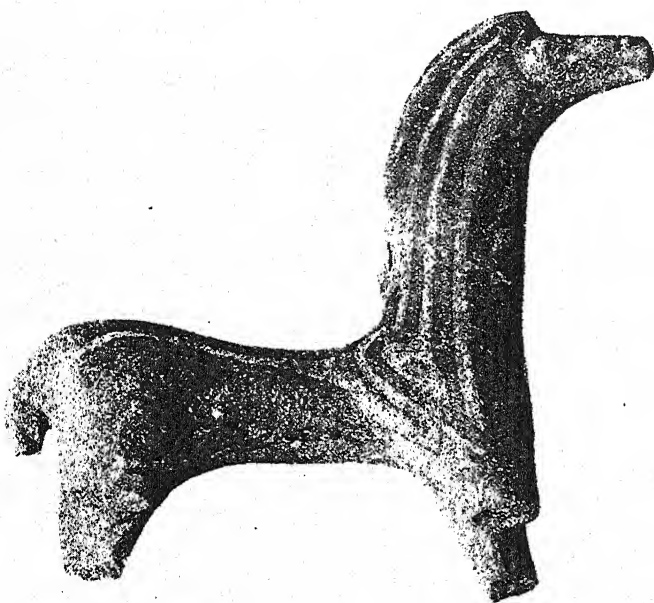


Fig. 13. Terra Cotta. Division B, Group II, no. 4, 850-825 B. C.  
P. 28.

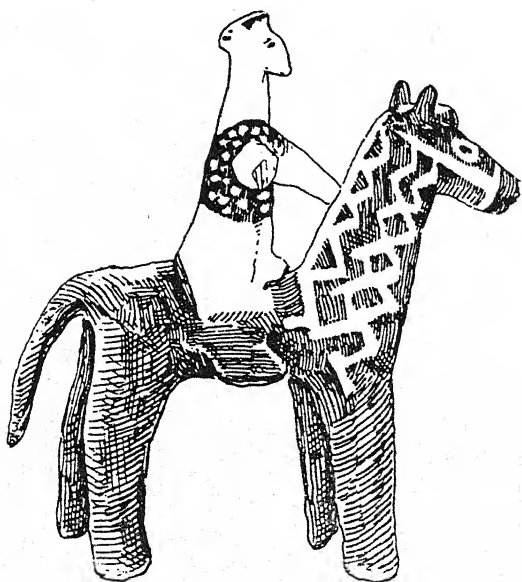


Fig. 14. Terra Cotta. Division C, Group I, no. 1, 800-775 B. C.

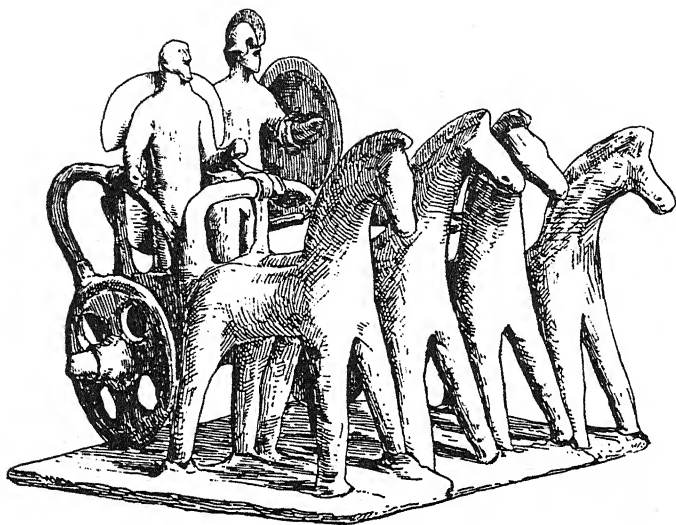


Fig. 15. Terra Cotta. Division C, Group II, no. 7, 775-750 B. C.  
P. 30.

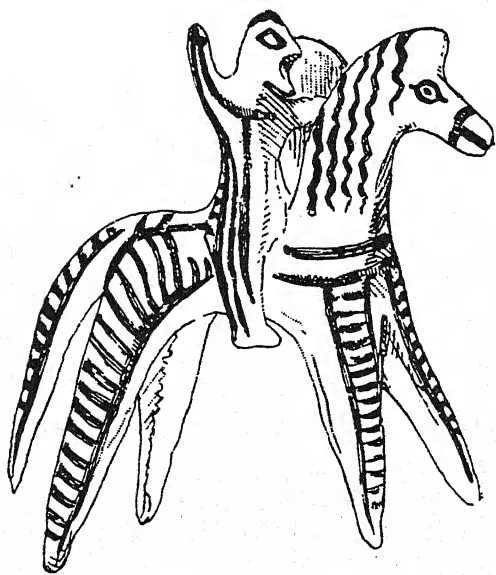


Fig. 16. Terra Cotta. Division D, no. 1, 725-700 B. C.  
Pp. 31, 109.



Fig. 17. Example I, Aryballos from Thebes, 700-675 B. C.  
Pp. 41, 43, 110, 148.

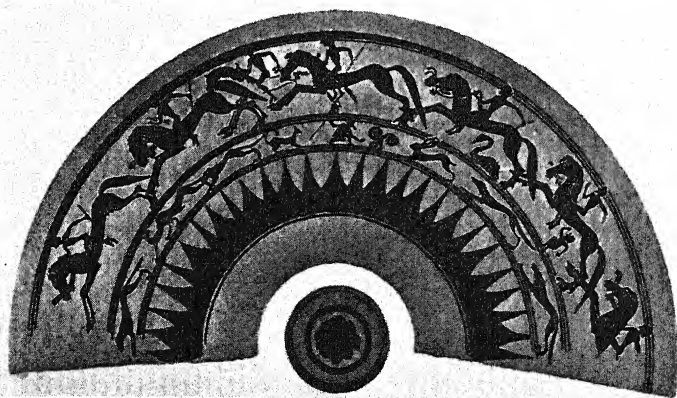


Fig. 18. Example II, Macmillan Aryballos, c. 650 B. C.  
Pp. 42, 47, 110, 113, 149.

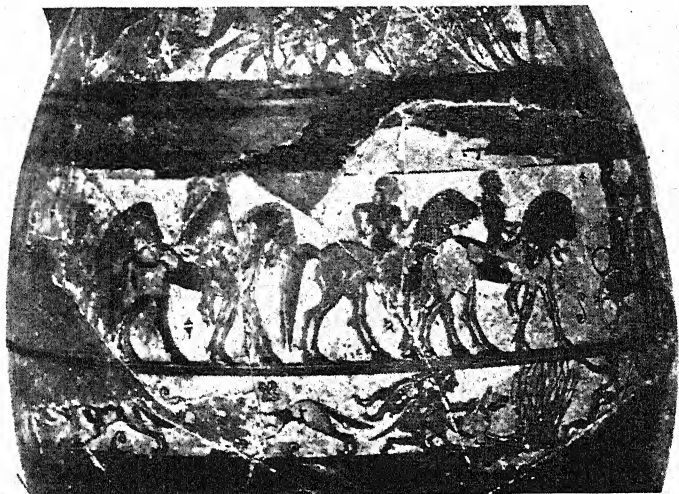


Fig. 19. Example III, Chigi Vase, 650-635 B. C.  
Pp. 43, 111, 150.



Fig. 20. Example IV, Delo-Melian Amphora, 635-620 B. C.  
Pp. 44, 111, 151, 153.

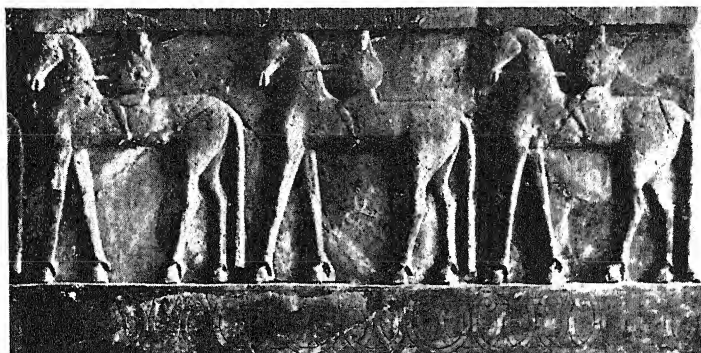


Fig. 21. Example V, Prinias Frieze, Last Quarter of 7th Century B. C.  
Pp. 44, 45, 111, 152.



Fig. 22. Example VI, Timonidas Vase, c. 580 B. C.  
Pp. 45, 111, 154.



Fig. 23. Example VII, Amphiaraios Krater, c. 550 B. C.  
Pp. 46, 47, 48, 111, 112, 155, 157.

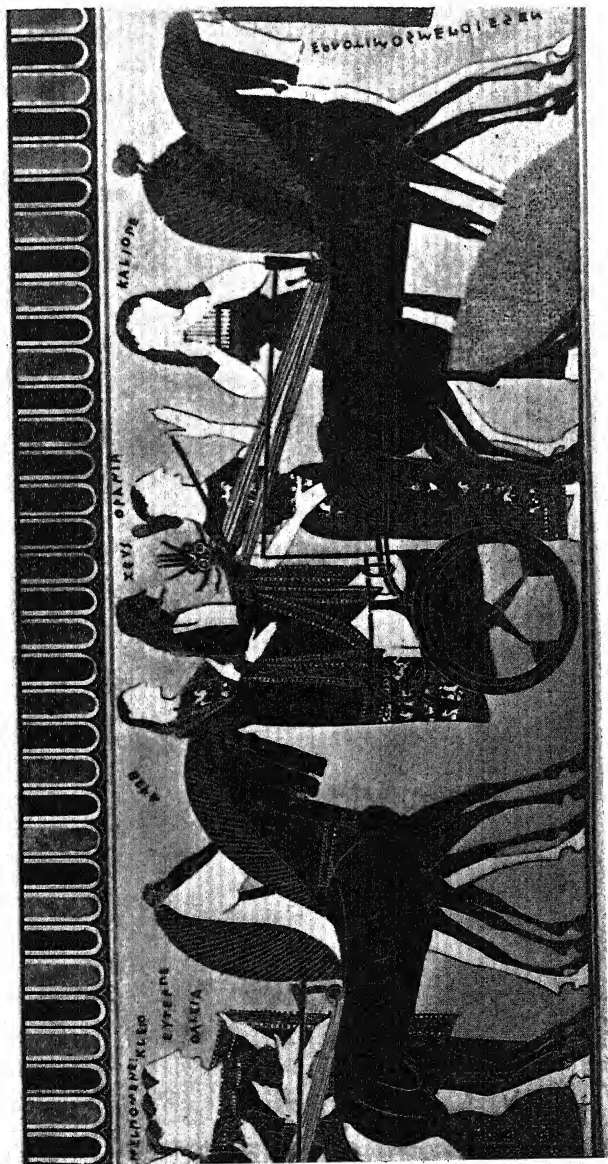


Fig. 24. Example I, François Vase, c. 560 B. C.  
Pp. 46, 48, 64, 112, 113, 156, 159.





Fig. 25. Example III. Treasury of Siphnians, West Frieze, c. 530-525 B. C.  
Pp. 16, 50, 51, 57, 61, 65, 112, 113, 114, 115, 158.



Fig. 26. Example V, Treasury of the Siphnians, East Frieze.  
Pp. 16, 50, 51, 57, 61, 65, 112, 113, 114, 115, 161.





Fig. 27. Example V, Detail of Treasury of the Siphnians,  
East Frieze.

Pp. 16, 50, 51, 57, 61, 65, 112, 113, 114, 115, 161.

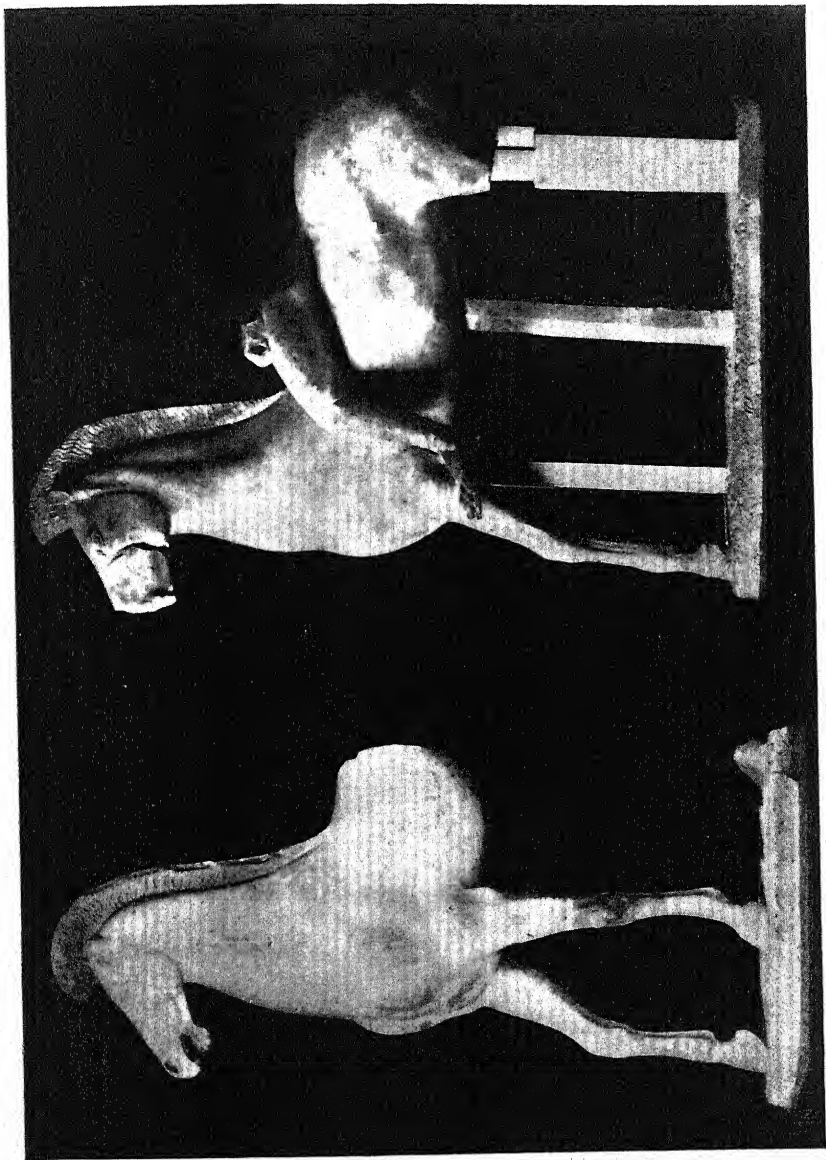


Fig. 23. Examples VII and VI, Akropolis nos. 697 and 700, 510-500 B. C.  
Pp. 10, 50, 52, 59, 62, 63, 65, 111, 116, 117, 118, 162, 164.



Fig. 29. Example VI, Detail, No. 700.  
Pp. 16, 50, 52, 59, 62, 63, 65, 111, 116, 117, 118, 162.

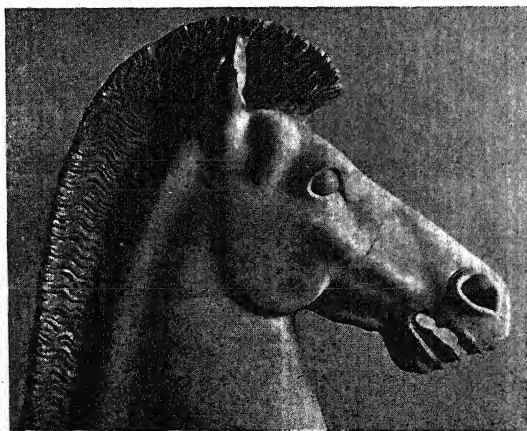


Fig. 30. Example VII, Detail, no. 697.  
Pp. 16, 50, 52, 59, 62, 63, 65, 111, 116, 117, 118, 164.

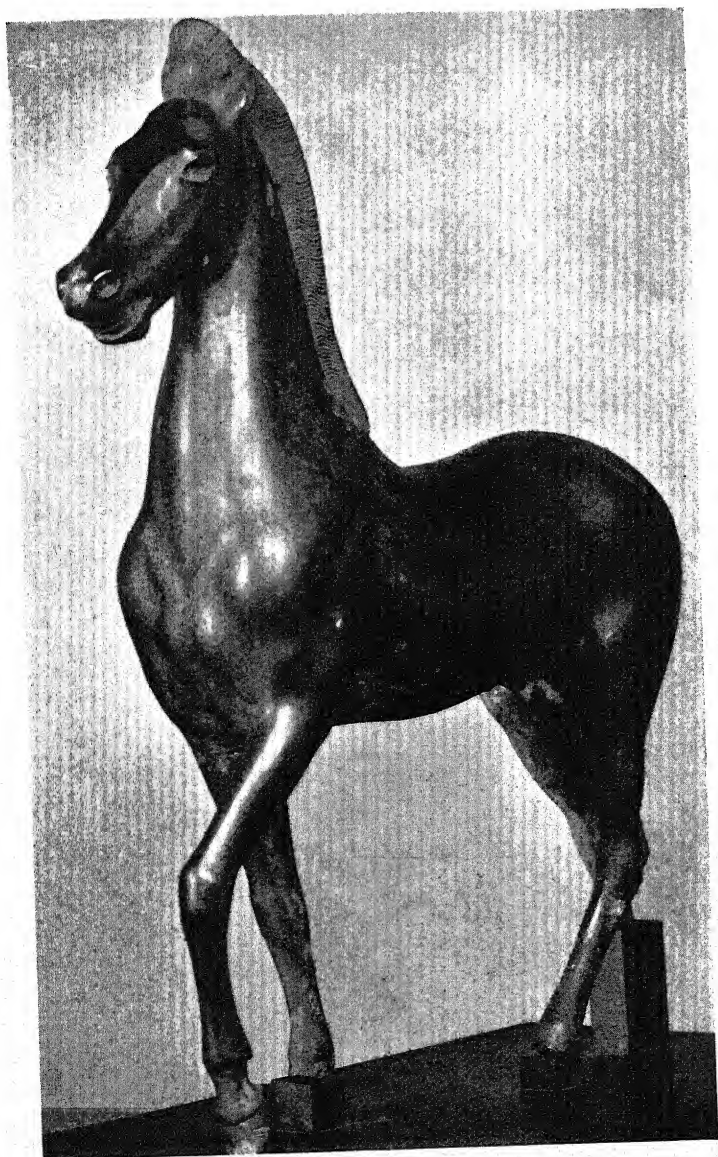


Fig. 31. Example VIII, Bronze Horse in Metropolitan Museum.  
New York, 500-490 B.C.

Pp. 16, 59, 60, 62, 63, 65, 112, 117, 165, 168.



Fig. 32. Example IX, Demarateion Dekadrachm, Syracuse,  
479-478 B.C.

Pp. 17, 59, 63, 65, 66, 112, 118, 167.

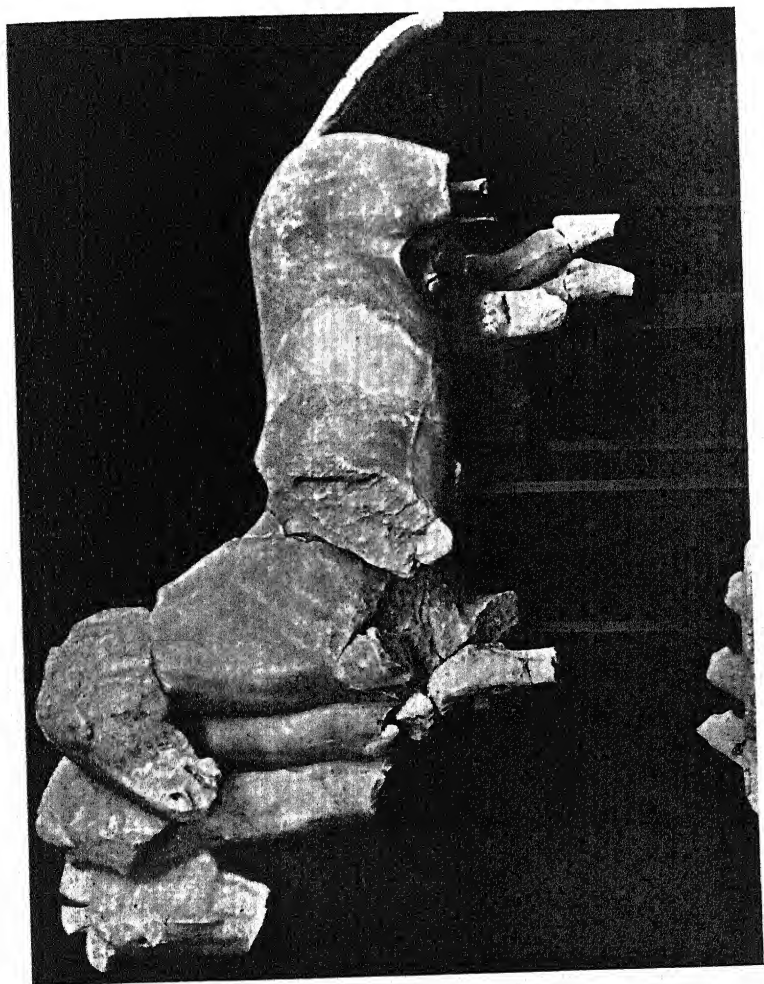


Fig. 33. Example I, Span of Oinomaos, Temple of Zeus, Olympia, 468-457 B. C.  
Pp. 16, 66, 83, 84, 118, 119, 120, 121, 168, 171.



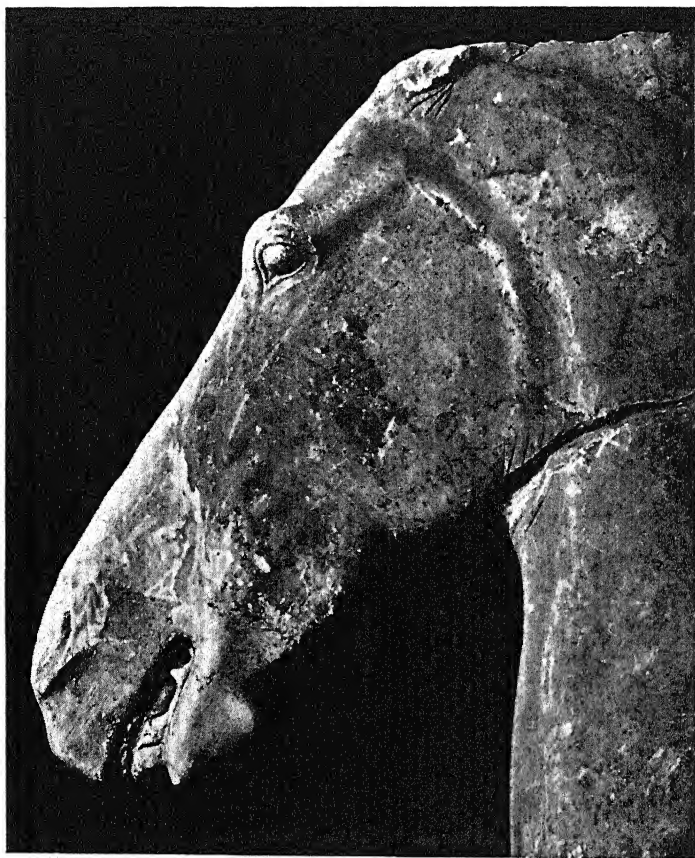


Fig. 34. Example I, Detail.

Pp. 16, 66, 67, 68, 83, 84, 118, 119, 120, 121, 168, 171.

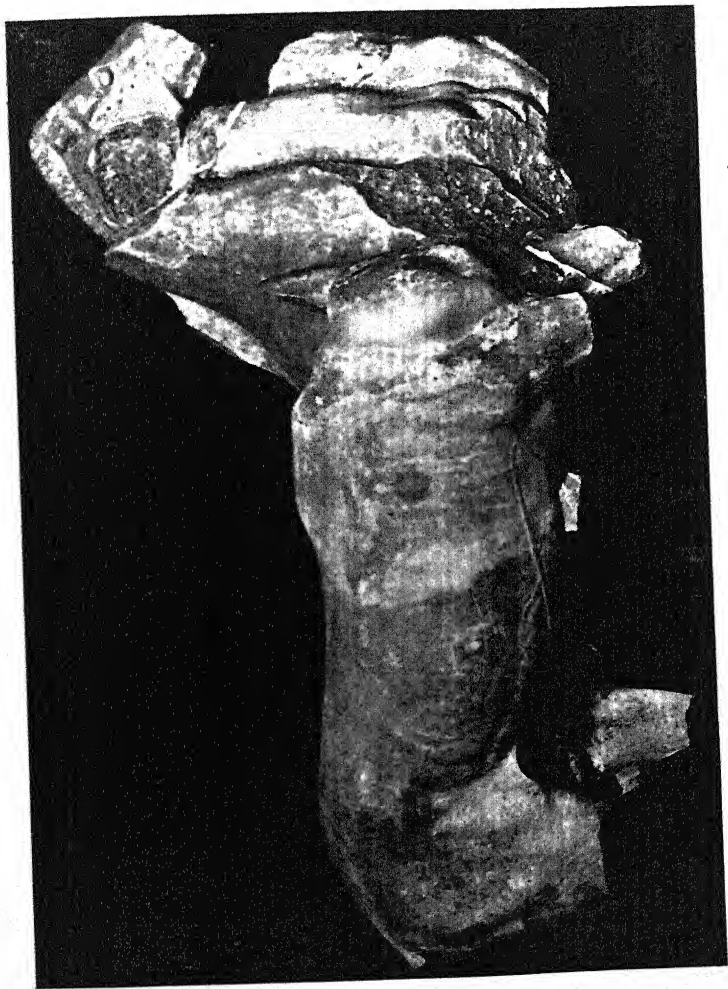


Fig. 35. Example II, Span of Pelops, Temple of Zeus, Olympia.  
Pp. 16, 66, 68, 83, 84, 118, 119, 120, 121, 170.





Fig. 36. Frieze from a Tomb at Xanthos, 465-455 B. C.  
Pp. 15, 119.



Fig. 37. Bronze Horse found at Olympia, 455-445 B. C.  
P. 120.



Fig. 38. Example III, Parthenon Frieze, West II, 442-438 B. C.

Pl. 16, 66, 68, 69, 70, 71, 77, 82, 83, 88, 89, 93, 100, 118,  
120, 121, 122, 125, 146, 171, 174, 186, 187.



Fig. 39. Example IV, Parthenon Frieze, West III.

Pp. 16, 66, 68, 70, 72, 77, 82, 83, 88, 89, 93, 100, 118, 120, 121, 122, 125, 172, 174, 180, 187.



Fig. 40. Example VI, Parthenon Frieze, West V.

Pp. 16, 66, 68, 71, 82, 83, 88, 89, 93, 100, 118, 120, 121, 122, 123, 175, 186.



Fig. 41. Example VII, Parthenon Frieze, West VIII.

Pp. 16, 66, 68, 73, 82, 83, 88, 89, 93, 100, 118, 120, 121, 122, 125, 146, 175, 186.





Fig. 42. Example VII, Detail.  
Pp. 16, 66, 68, 73, 82, 83, 88, 89, 93, 100, 118, 120,  
121, 122, 125, 175, 186.



Fig. 43. Example VIII, Parthenon Frieze, West XII.  
Pp. 16, 66, 68, 73, 82, 83, 84, 85, 88, 89, 93, 100, 118, 119, 120,  
121, 122, 125, 177, 186.





Fig. 44. Example IX, Parthenon Frieze, North XLII.

Pp. 16, 66, 68, 75, 82, 83, 88, 89, 93, 100, 118,  
120, 121, 122, 125, 178, 186.

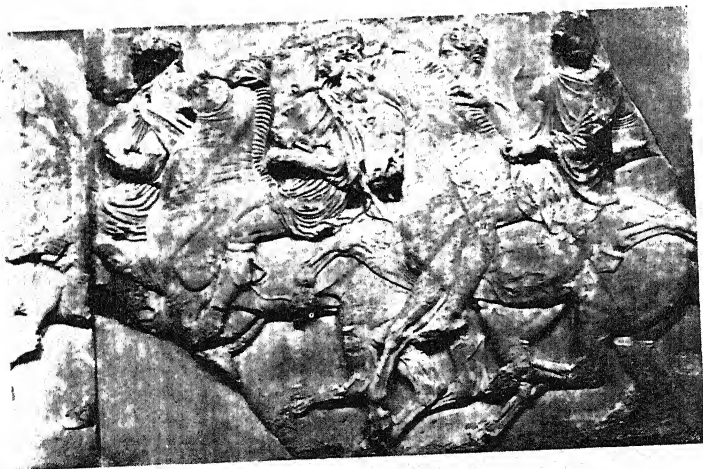


Fig. 45. Example X, Parthenon Frieze, North XLI.

Pp. 16, 66, 68, 75, 76, 82, 83, 88, 89, 93, 100, 118,  
120, 121, 122, 125, 146, 179, 186.

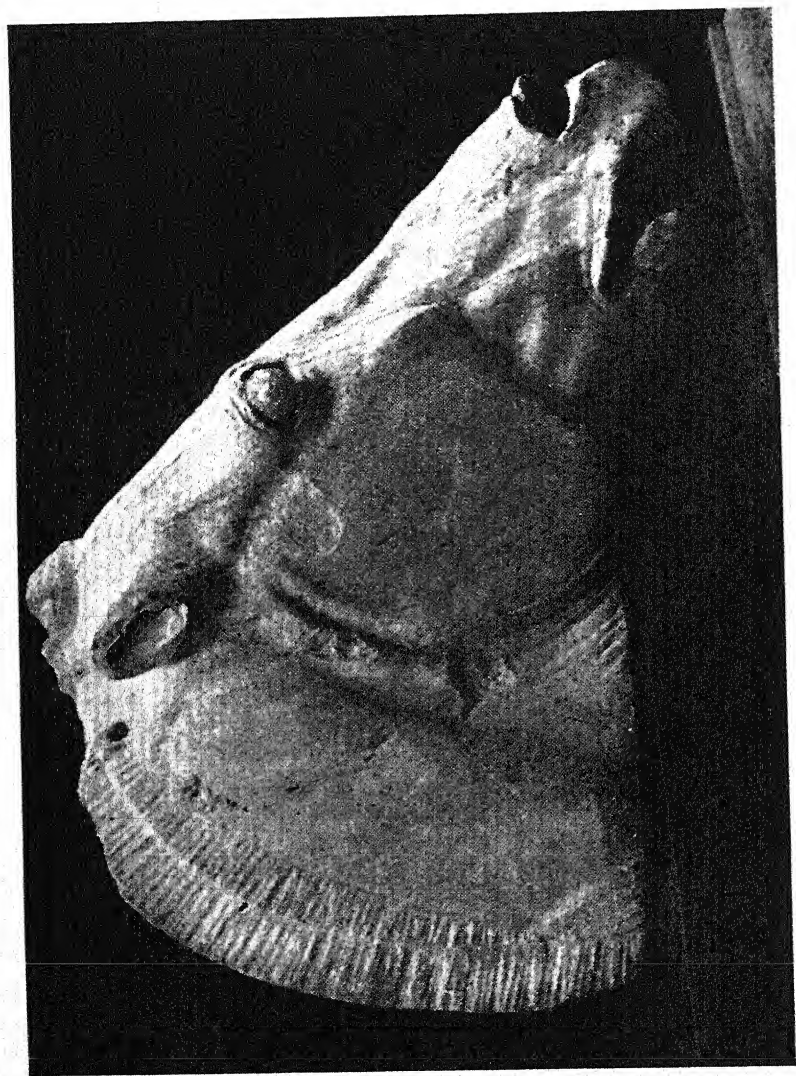


Fig. 46. Example XII, Parthenon, East Pediment, Selene's Horse, 438-432 B. C.  
Pp. xi, 78, 16, 68, 78, 82, 83, 84, 88, 89, 118, 121, 122, 125, 181, 182.



Fig. 47. Example XIII, Bassae Frieze, 430-420 B. C.  
Pp. 16, 66, 79, 80, 82, 84, 87, 95, 100, 119, 122, 182, 183, 186.



Fig. 48. Example XIV. Bassae Frieze.

Pp. 16, 66, 79, 80, 82, 84, 85, 87, 95, 98, 99, 100, 101, 107, 119, 122, 125, 133, 183, 186.



Fig. 49. Example XV, Syracusan Dekadrachm, after 413 B. C.  
Pp. 17, 81, 82, 85, 87, 90, 122, 123, 124, 126, 127, 184.







Fig. 51. Example II, Dexileos Stele, 394 B. C.  
Pp. 88, 90, 92, 97, 100, 124, 125, 126, 186.

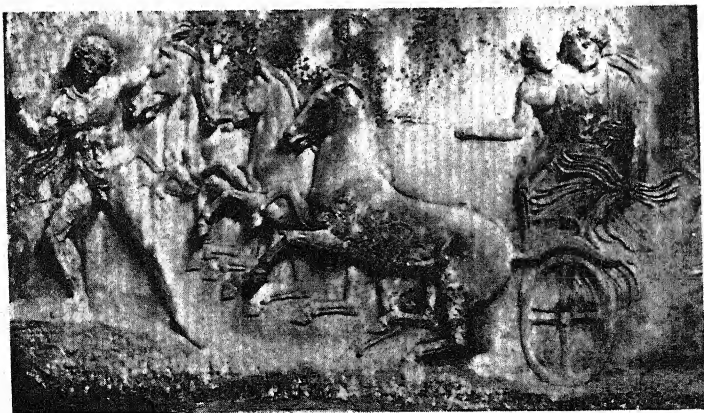


Fig. 52. Echelos-Basile Relief, c. 390 B. C.

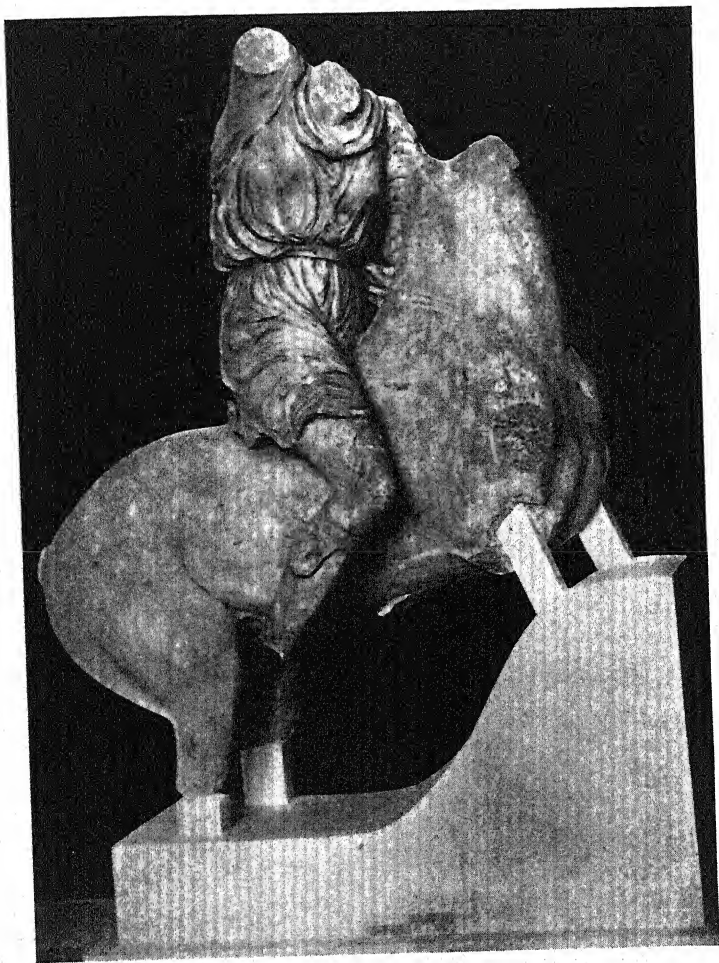


Fig. 53. Example III, Amazon on Horseback, Temple of  
Asklepios at Epidauros, c. 380 B.C.

Pp. 91, 92, 160, 124, 125, 127, 128, 129, 187.





Fig. 54. Example IV, Akroterion, Temple of Asklepios at Epidauros.

Pp. 91, 92, 100, 124, 125, 127, 128, 189.



Fig. 55. Example V, Horse from Colossal Quadriga,  
Mausoleum at Halikarnassos, by Pythios, 353-350 B. C.

Pp. 17, 93, 94, 100, 125, 127, 128, 129, 131, 190, 193.



Fig. 56. Example VI, Amazon on Horseback, Mausoleum Frieze.

Pp. 88, 93, 94, 95, 99, 100, 101, 104, 125, 127, 128,  
129, 130, 190, 195.

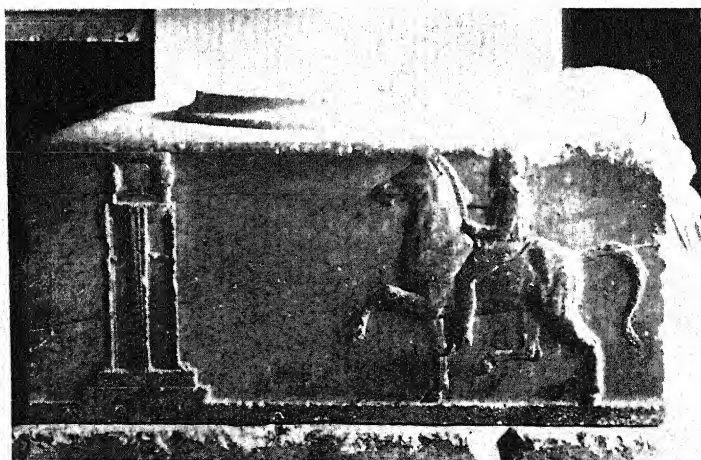


Fig. 57. Example VII, Warrior on Horseback, Mausoleum Frieze.



Fig. 58. Example VIII, Alexander Sarcophagus, 325-300 B. C.  
Pp. 88, 98, 99, 101, 102, 104, 107, 125, 129, 130, 131, 132, 193.



Fig. 59. Plaque in the Metropolitan Museum, New York,  
Relief of a Rider, 310-290 B. C.

Pp. 97, 131.



Fig. 60. Bronze Statuette of Alexander, from Herculaneum  
in Naples, c. 300-250 B. C.

Pp. 102, 131.

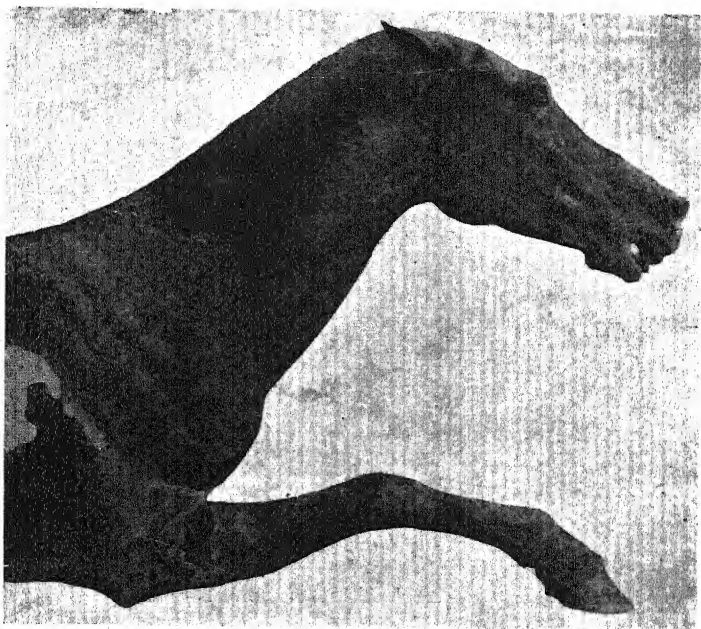


Fig. 61. Bronze Race Horse found in the Sea near Euboea, Athens.  
Middle of the Third Century B. C.





Fig. 62. Example I, Frieze of the Great Altar, Pergamon, c. 180-160 B. C.  
Pp. 103, 131, 132, 133, 194.